January 1973

Smithsonian

African gold in use today (see p. 20)
Above: an Akan woman with fly whisks

Rafting on the wild Chattooga

Relaxing at Middleton Gardens

Backpacking in the Blue Ridge

Riding on Hilton Head Island

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Take a train ride on "Old No. 1" through the scenic Blue Ridge.

Go to the Midlands, where our lakes seem to have no end. Sun. Swim. Canoe. Sail a boat. Land a bass.

See the steeplechases in Camden (Carolina Cup in April, Colonial Cup in November). Watch the polo games in Aiken (February, March, April).

Stomp your feet at the folk music festival at Myrtle Beach in mid-March. (After you hear authentic folk music by some real mountain musicians, you may decide to take a few guitar lessons yourself.)

See the outdoor statuary at the spectacular Brookgreen Gardens.

Walk along the quiet cobblestone streets of Charleston. (A city straight out of the West Indies.)

See harbor houses with tropical piazzas and tiny English gardens behind lacy iron gates. (You may get some ideas for your own garden.)

Go back to the days of George Washington and Stede Bonnet (the gentleman pirate) at the Charleston Museum and the Old Exchange.

Have a feast on She-Crab Soup, Roasted Bull's Bay Oysters, Okra Gumbo, Scampi "Barbadoes," Roast Duckling Carolina. (And take home some terrific recipes.)

Visit Charles Towne Landing and see the Animal Forest, where you walk through cages and the animals run free. (A nice switch for everyone.)

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Let your kids milk a cow. Gather eggs. Grind corn at an old stone mill. Ride in a mule-drawn wagon. (A great experience for city kids.)

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Secretary Ripley's comments

The view from the castle

Foundations play an important role, but as partners with government they could play it much more effectively than at present

A foundation, as one dictionary defines it, is "an institution founded and endowed." The Smithsonian Institution was founded by an Act of Congress in 1846 to give effect to James Smithson's bequest of his personal fortune to the United States. John W. Gardner has described it as "the first of the new-style foundations," and so we too presented testimony on the role of foundations to the Congress during its consideration of the 1969 Tax Reform Act.

The United States has been the scene of the most varied development of philanthropy in the world. According to Milton Katz of the Harvard Law School, "Private philanthropy in the United States expresses certain postulates of American life, notably pluralistic responsibility and voluntary action." These are the attributes of free men, part of the indigenous movement known as "voluntarism."

Over the years since the income tax began to siphon off wealth into the public purse, those initiatives which developed from voluntarism—in health, welfare and education—have been increasingly supported by the government. The populist ethic has encouraged this. Our present neosocialist tradition demands it. But does this mean that voluntarism should cease? Rather, philanthropy must be encouraged, for if men accept responsibility they are better men. Voluntarism bespeaks individual initiative, one of the basic elements of American life.

Waldemar A. Nielsen in his controversial new book, *The Big Foundations,* is a supporter of that tradition; he feels that foundations ideally can fulfill the need for "independent centers of initiative to challenge, criticize and provide a creative spark for the massive governmental, economic, social and religious institutions which increasingly dominate our national life."

He tends to censure them, however, as timid, pedestrian and often self-serving. Some are subject to elderly and highly conservative trustees. Others, especially corporate foundations, have often been little more than conduits for feeding funds to self-advancing causes. Many have lagged badly in vision and acceptable initiative, whether through too much caution, opaque administration or, sometimes, fear of stockholder reaction.

So long as our tax laws continue to encourage them, such philanthropic outlets would do better to make people understand that their money is part of the whole national income. By spending it for the public good, they can enter many paths still closed to the tax-supported instruments of the state. All foundation monies are really part of the public monies; they are part of our wealth to be shared to create dynamism and initiative in meeting national needs, as even Representative Wright Patman of Texas, a longtime foundation critic, has acknowledged and stated. Foundations are by no means "privileged tax shelters."

I venture to think that in years to come they will be recognized as one of the finest expressions of our pluralistic society. I feel, too, that the pattern evolved by the Smithsonian of a mixture of private and public support, of accountability on the one hand and of the jealous cherishing of independent initiative on the other, is a model for philanthropic enterprise.

S. Dillon Ripley

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Disturbing questions; but the wrong answers, or no answers at all are even worse.

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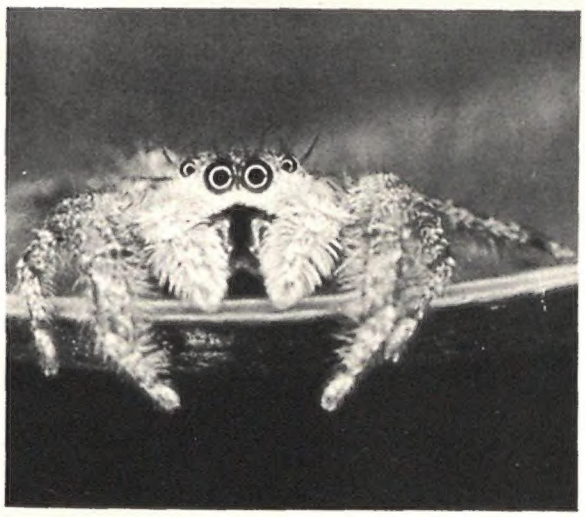
Phenomena, comments and notes

Illicit antiquities trade, physics hoist on its own footnotes, trouble in frogdom and how to use eight legs

It is almost impossible for most of us who have two legs to think about coordinating into some semblance of orderly locomotion the activities of a spider's eight legs. To his credit, a scientist named M. F. Land has made an attempt in this direction.

First of all, as reported in *Nature* magazine, he determined that when a jumping spider spies its prey with one of the four lesser eyes that are ranged laterally around its head, it turns its body so that it can scan the victim with its two principal eyes, which are located at the front of its head. Once the spider begins to turn, however, the prey disappears temporarily from view, yet the spider apparently always turns just enough to attain the desired position for a frontal inspection. How could this be, since the spider has no "visual feedback" system involved in its movements, as we do? There must be some signal that says (and says only once): Turn so far and no farther.



A jumping spider about to pounce

It is not, according to Mr. Land, some neurological command to turn for a certain period of time, since the spider is given to turning at different rates of speed. Nor does the spider always start off with its legs in the same position or, alternatively, end up with its legs in the same position. So it could not be some kind of fixed program which always says: Untangle leg A and move leg C to such and such a spot and so on.

For Mr. Land, "the most plausible explanation" arises from the fact that however fast the spider turns, its steps are always the same length. That is, with every turning movement, the spider turns through the same size angle. So when a jumping spider sees its prey, all that is required is a signal that says, like Arthur Murray, two steps to the right, or three steps to the left or what not—a simple numerical command.

While this insight may not put us fully and comfortably into the place of the spider, it is at least a start.

Environmentalists' new ally

There may be more trouble ahead for the oil industry—and from an unexpected quarter. It seems that a particular kind of crushed rock called attapulgite will soon be in short supply and, because of its unique properties, attapulgite is a superior material for making drilling mud for oil wells. Thus demand is growing.

But, according to *Environmental Quality* magazine, attapulgite has another significant use, again thanks to some of its unique properties. It is commonly sold as cat litter. And if the oil industry feels put upon now by the thousands of members of environmental groups angry about pipelines in the wilderness and oil spills in the oceans, wait till the millions of American cat owners find that their kitty litter supply is threatened.

On the shoulders of giants only

It is commonly held that science very rarely progresses by sudden breakthroughs but rather by the patient accretion of small insights and bits of data compiled by thousands of scientists the world over. This view has been challenged by two sociologists, Jonathan R. Cole and Stepher

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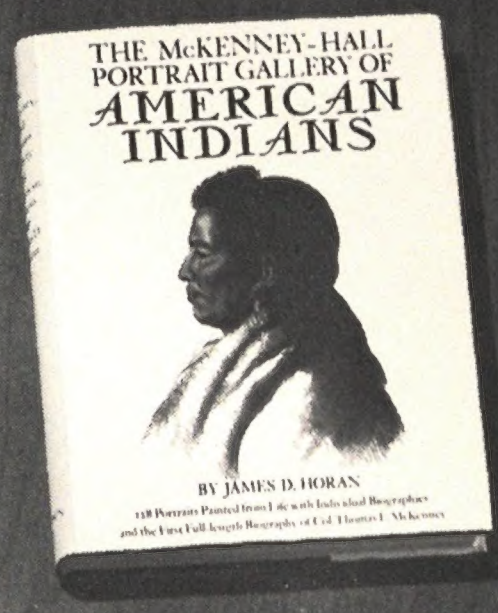
—BERNARD DE VOTO



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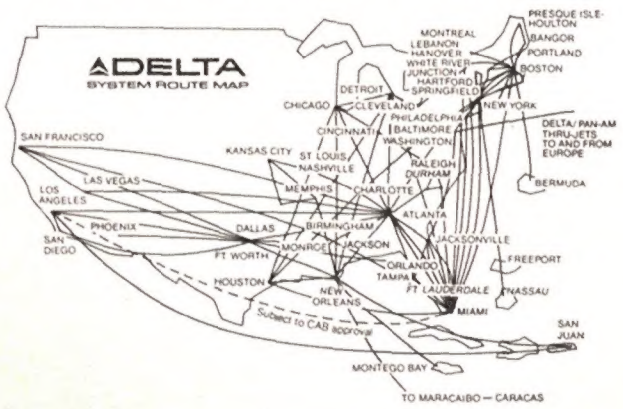

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Cole, of Columbia and New York State University respectively, writing in *Science* magazine.

By analyzing the citations (*i.e.* footnotes) made by 84 university physicists in their research papers, they found that "work used by the producers of outstanding research is itself produced by a small minority of scientists." Further, they found that almost all of the important papers on U.S. physics are produced in the country's nine top physics departments and a few distinguished laboratories. They conclude that a rather large proportion of physicists are unnecessary for the advancement of the science and they recommend fewer physics departments turning out fewer physicists.

The Coles firmly point out that these conclusions apply only to physics and not to any other of the branches of science (which are yet unanalyzed by this method), but nonetheless it would be interesting to see what some of the idle physicists might turn up if they began to look into sociology.

To save the past

The illicit trade in antiquities and works of art has become a matter of the utmost concern at the Smithsonian Institution and elsewhere, and two articles in this magazine's brief history have reflected this concern (see SMITHSONIAN, October 1970 and March 1972).

The latest voice to be raised, and one of the most uncompromising, is that of Dr. Bennet Bronson, writing in the Chicago *Field Museum of Natural History Bulletin*. In addition to reviewing the defacement and loss of foreign antiquities, especially pre-Columbian material, he points out that our own prehistoric past is being looted every day and believes that American antiquities laws are more "toothless" than those of most African countries. Nor are our revered institutions always blameless. "At a rough estimate," Bronson says, "around half of the major American museums with antiquities in their collections have in the last ten years acquired at least one important illicit archaeological object," although they seldom display them.

There are outright thieves involved and others who operate in a quasi-legal "gray area." Both should be put out of business. Up until now, the antiquities trade has been "carried on within a small and

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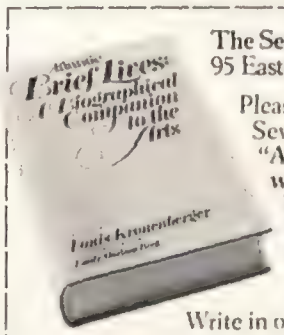

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slightly secretive circle of dealers, collectors, professors and curators who have cut themselves off from the world at large as much by the obscurity of their language as by the necessity of protecting their enormously valuable collections."

The problem is growing, with added opportunities for fraud and destruction. Bronson urges that the public be told "what kinds of damage are being done; what things are being stolen; and what the consequences are of [the public's] innocent desire for bargains, their innocent pleasure in breaking petty foreign regulations, and their innocent fondness for using statues of ancient gods as living-room decorations. And eventually names must be named. All the talk in the world about unscrupulous dealers and rapacious collectors will have no real meaning until we can begin saying, in detail, what and where and who."

The frogs are croaking

The frog business is off. Importers are going as far afield as Indonesia to obtain frozen frogs' legs. Organizations that supply U.S. researchers with two million frogs a year and biology students with 20 million a year, report that millions of these amphibians died last year and millions more will die this spring. The same mysterious leap in mortality has been noted with alarm in Great Britain, and no one in either country knows for sure what the cause is.

Some have suggested the runoff of agricultural wastes into the frogs' watery habitat, but evidence is lacking. A more likely answer is infection. A dry summer in 1971, so the reasoning goes, made frog food hard to find, so millions of frogs entered their period of hibernation in a weakened condition. Thus they would succumb more easily to bacteria which are always around but to which healthy frogs have a certain amount of resistance.

Until some of those millions of biology students and researchers find out how to combat the bacteria, or whatever else it is that makes frogs redden and then die, science may be forced to turn to some less threatened, if less adequate, experimental animal. For example, the Smithsonian's Center for Short-lived Phenomena reports that there is an excess—indeed a plague—of house mice in the wheat and sorghum growing areas of Queensland, Australia. . . .

The World War II Commemorative Medal Society, in association with The Lincoln Mint, is pleased to announce a limited edition of

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Minting of the History of the Second World War is a major event offering a significant investment opportunity, in addition to the costly metal, with the potential of immediate and future value.

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- The Lincoln Mint, one of the nation's foremost private mints, will create and strike the ingots which will make up this panoramic history.
- This First Edition will be the first medallic-ingot tribute to be issued anywhere in commemoration of the American role in the history-making conflict.

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Cost will be $12.50 per ingot, and ingots will be issued at the rate of one per month to subscribers who select either 12-subject set, or two per month for subscribers to the complete series.

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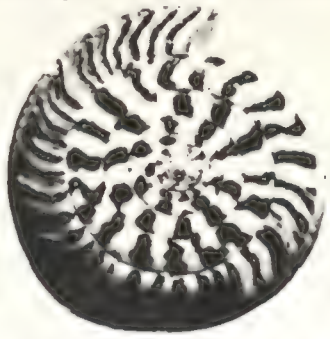
Photographs by Andreas Feininger
Text by William K. Emerson



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Letters to the Editor

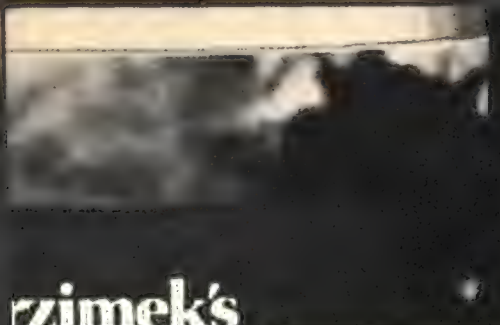
Plight of the Ik and Kaiadilt

Dear Sir: John B. Calhoun's article on the plight of the Ik and Kaiadilt in the November issue is the most terrible nightmare I have ever read about our species and our planet. It's much too strong for general reading; people would deny, belittle, rationalize against the intolerable descent of Man into sub-animal. I guess I'm writing to say I can't bear it.
Alison Peabody Marks
Lexington, Massachusetts

Dear Sir: Regrettably, one doesn't have to look as far away as Uganda or Australia to see the destruction of humanity by the humane overlords. The history of the American Indian and Manifest Destiny provide an unfortunate parallel.
Ira Mark Bloom
Silver Spring, Maryland

Dear Sir: The picture of the old Ik quietly awaiting death is no more poignant than the old women I recently visited in a home for senior citizens. The callousness toward the ill and the hopelessness of the situations defeat me. Dr. Calhoun's article puts into words some of my feelings of despondency about their plight. It appears that we already have too many people—especially old women. Man's inhumanity to man seems to know no limits.
Margaret S. Sellers
Jacksonville, Arkansas

Dear Sir: I am writing on a Sunday morning in a quiet Midwestern county seat. This would seem to be worlds away from the Ik and Kaiadilt. It was a chilling experience to read Dr. Calhoun's article.



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Dr. Calhoun's article needs to be read by everyone. It needs to be understood by everyone.

R.E. Thompson
Knox, Indiana

Travels with Tocqueville

Dear Sir: In your article, "Travels with Tocqueville: Traces of his America persist," would it not have been appropriate for author Joseph Barry to have acknowledged drawing upon an excellent source, George W. Pierson's *Tocqueville and Beaumont in America*?

Edward Gordon
Chicago, Illinois

Mr. Barry acknowledges his debt to Professor Pierson's excellent book and to other historical sources for valuable background information. Ed.

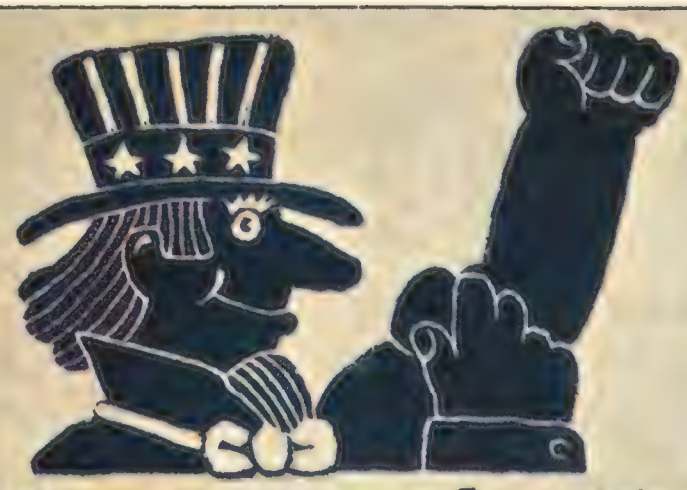
Cowboy ghosts

Dear Sir: Elizabeth Fagg Olds, in her article about the Texas museum Ranch Headquarters, mentions the "Goodnight Trail." I was reminded of a song by Bruce "U. Utah" Phillips, "The Goodnight-Loving Trail," named for a Mr. Goodnight and a Mr. Loving who were pioneers on the harsh cattle-drive trail that still bears their name. The "old woman" referred to in the stanza below is the generic name for the cook—usually an older cowboy who could no longer work on the trail but was unwilling to give up the life:

> *Too old to wrangle or ride on the swing/ you beat the triangle and curse everything. And if dirt was the kingdom then you'd be the king,/on the Goodnight Trail, on the Loving Trail,/our "old woman's" lonesome tonight. Your French harp blows like a lone bawling calf,/it's a wonder the wind don't tear off your skin,/get in there and blow out the light.*

Carol Mayfield
San Francisco, California

Two weeks in the hospital can cost you two months in wages.



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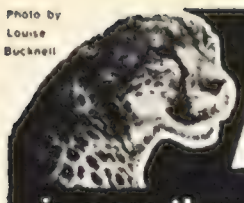
Photo by Louise Bucknell

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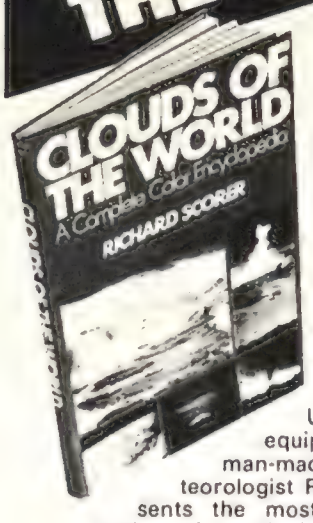

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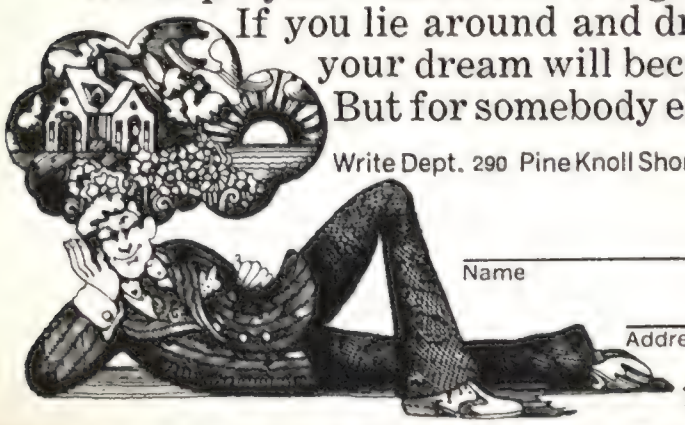

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View from the castle

Dear Sir: In Mr. Ripley's comments about scientists in government, aside from the innuendos, he uses the language imprecisely—describing scientists as "inductive" reasoners as opposed to "humanists" who reason "deductively."

I want to point out that *the* basic principle of science is not to be assigned to any theory of reasoning—or any view other than that which is objective. Apparently, the Secretary has a prejudice against people he chooses to identify as scientists.

As a working surgeon for 30 years, science is important to my life; the medical practice, even in surgery as a specialty, is 90 percent art vs. science.

R.P. Moore
Astoria, Oregon
Secretary Ripley is a scientist, a working zoologist. Ed.

Dear Sir: Sorry Mr. Ripley was feeling so bilious. Scientists are not a clan of gurus and ex-gurus.

Where would you be if the lights of your Castle went out and stayed out?

Mrs. Perry C. Crandall
Vancouver, Washington
Re lights, agreed. Ed.

Dear Sir: Mr. Ripley's comments were worth the year's subscription.

William Arkwright Doppler
Florham Park, New Jersey
Mr. Doppler is the grandson of Johann Doppler, who formulated the principle that distance affects the frequency of sound and light waves received; it is of great importance in astronomy and is known as the Doppler effect. Ed.

Dear Sir: It is refreshing to hear a politician confess the underlying fault of politicians—namely, that of being unable to do anything better than reason deductively from assumed principles. Knowing the kind of imaginative insight possessed by politicians—past and present—it is no surprise that we have amassed over the years our monumental record of wars and boondoggles.

Mrs. John R. Wright
Tallahassee, Florida
Although Mr. Ripley is an appointee of the Smithsonian Board of Regents and not a politician, Mrs. Wright's general point is well taken. Ed.

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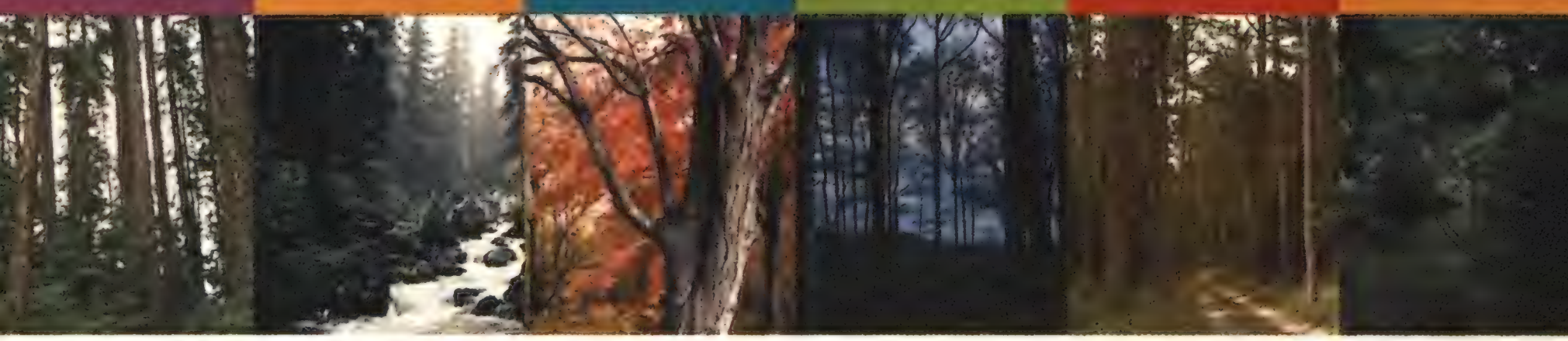

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Because America's forest is truly an *American* forest, growing in many different elevations and rainfalls and temperatures and soils, its six distinct natural regions provide us with a constant variety, too, from the Douglas firs of the Northwest to the hardwoods of the Northeast.

Much of the forest has been harvested and regrown three or four times. And, public or private, government or individually owned, much of it is available for hunting and fishing, picnicking and camping—as millions of outdoorsmen from Maine to California can tell you. So if you haven't seen it lately, why wait?

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Source: Department of Agriculture, U.S. Forest Service

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Tornado psychology

Dear Sir: I would like to add to the D.C. Thompson comment in your Letters to the Editor my own observations of how Southerners vs. Midwesterners react when faced with a tornado threat. In the plains, an approaching tornado is usually visible, but in the South it usually arrives in the midst of a heavy downpour of rain in which the clouds hide any visual warning of the threat.

I have lived in Arkansas for 60 years, and have more than once heard the roar of a passing tornado that I could not see because of the heavy downpour. Had I been in its path, I would never have seen it. Once I did see a tornado pass by, and, although I knew I was safe, it took great effort of will not to run.

As for the influence of religious outlook, I am a Catholic priest and I feel sure that most Southerners of a religious outlook would have felt an equally strong urge to run.

One evening I visited a town, well known to me, and sensed something different. It was as if the whole community was waiting and watching on the alert for great danger. I learned that there had been a tornado alert for that time and place. I sensed no fatalism or resignation in that Southern community.

Lawrence Maus
Blytheville, Arkansas

The U.S. Weather Bureau, however, finds little correlation between mortality rates due to tornadoes in different areas of the country because of poor visibility or foul weather. For example, despite early warning and clear visibility, there was the high death toll of 113 in a series of tornadoes in the Mississippi Delta on February 21, 1971. Ed.

Prairie dogs

Dear Sir: Mary Cable's article in your October issue about prairie dogs was of special interest to me because we have had one of these engaging animals as a pet for nine years. He was given to my children as a Christmas gift, and over the years has proved to be a clean, easy-to-care-for and lovable little friend.

We wish Alcalde, New Mexico, luck in its prairie-dog colony preserve.

Mrs. Robert L. Kirkman
Montville, New Jersey

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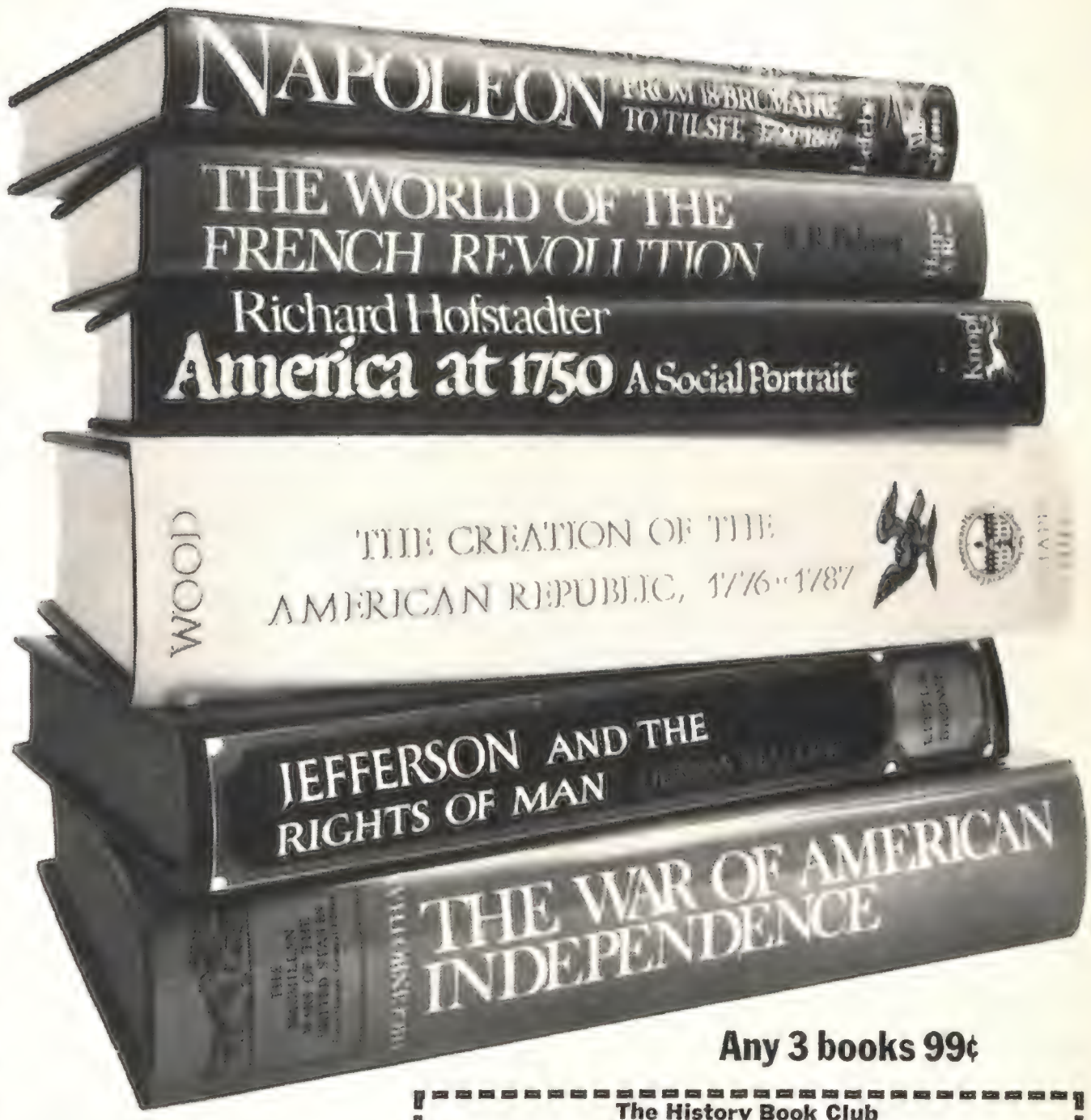
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Africa's ancient splendor still gleams in the Akan people's golden art

At the most solemn ceremonies, the chiefs of the Ashanti and other West African tribes use their rare, treasured gold even today

The din in the dusty square was deafening. Muzzle-loaded rifles, fired at random, exploded in eye-blinding flashes. What sounded like a hundred drums reverberated in polyphonic rhythms. More than a thousand Ashanti tribesmen, led by handsomely costumed chiefs, paraded and prostrated themselves before the king, the Asantehene. Large, colorful umbrellas twirled overhead to shield the chiefs from the intense afternoon sun and to move the still air of Kumasi, capital of the Ashanti people in Ghana.

It was one of the most elaborate Ashanti ceremonies since the London-educated barrister and diplomat, Otumfuo Nana Opoku Ware II, had been invested as Asantehene in 1970. The occasion, on this afternoon in March 1971, was a state visit by Ya Na, paramount chief of the province of North Ghana. Ya Na and his Muslim followers, in caps and tunics covered with small leather and fur amulets containing the sacred writings of the Koran, had come south to pay their respects to the new king of the Ashanti.

Everywhere in the square was the gleam of gold. The rifles, knives and pouches of the king's bodyguard were covered with gold. The Ashanti chiefs held

The West African sun burnishes the golden hilts of ceremonial swords as Ashanti chiefs pay homage to their king, the Asantehene, draped in red and himself bedecked in ancient Ashanti gold ornaments.

Photographs and text by Eliot Elisofon

Resplendent in ceremonial gold, two Ashanti chiefs are attended by their spokesman, a linguist, left.

their swords of state horizontally at waist level, the carved hilts covered with gold leaf, the scabbards bedecked with gold animals in the round. Rising above these insignia of office were the gold-covered staffs of the linguists, the men who speak for the chiefs. Gold jewelry was dazzling in the folds of brilliantly colored robes worn toga style by some of the men; other men were uncovered to the waist and gold ornaments gleamed against their black torsos.

In the small procession that accompanied each chief, a follower carried aloft a carved wooden stool, the symbol of his chief's power. The most precious possession of the nearly two million Ashanti people, the Golden Stool, was not in evidence. This Golden Stool, according to legend, came down from the sky centuries ago to be the symbol of the spiritual unity of the Ashanti people. However it arrived on the scene, the Stool is also the symbol for a remarkable political achievement in West Africa's past. In the late 17th century there were a number of small Ashanti village-states centered near present-day Kumasi. Primarily an agricultural people, they were also traders located along the old and ever more lively trade routes from the Sudanic north to the coast.

In the 1670s the Ashanti village-states united under one king and under the symbol of the Stool and proceeded to expand, trading gold, and later slaves, for the rifles they needed to consolidate their control of the trade routes. The Ashanti court monopolized the gold; it symbolized the sun as the center of the universe and gold-laden Ashanti kings believed they were the sun's representatives. Goldsmiths were a privileged group in the court and all men engaged in trade carried intricately cast weights for measuring gold.

By 1750 the Ashanti were unchallenged among the neighboring tribal states and they did not accede to any European control until 1874, when they lost a war with England which resulted in the British colony, the Gold Coast. Even then, the Ashanti managed to retain their unity and culture and, it appears, many of their prized gold objects. When the present Asantehene became king he was held over the same Golden Stool by the important chiefs of the tribe (not even the Asantehene may *sit* upon the Stool).

Other objects of ancient design were apparent at Ya Na's state visit. Among the crowd that day, I saw seven men dressed alike in brilliant red cloth with gold tablets covering the tops of their heads (see above right). Each tablet was decorated with intricate designs in

Mr. Elisofon, a film producer and photographer, lectures at Harvard's Peabody Museum and produced the film series, Black African Heritage, *as well as a book,* The Sculpture of Africa.

Wrought-gold tablet worn as headpiece is centuries old but has never been referred to before. Below, Ashanti noble holds sword of state bearing cast-gold bullock and a hilt of wood covered with gold leaf.

wrought or beaten gold, a process known by its French name, repoussé. No one—traveler, anthropologist, art historian—has made any reference that I have been able to find to these tablets, yet they were clearly centuries old, their edges worn away by use.

Indeed, with all of the burgeoning interest in African culture and art (see SMITHSONIAN, September 1972), little scholarly research has been focused on Ashanti gold. Intensely strong-willed, the Ashanti have kept their gold sculptures largely within the tribe, bringing them out for only the most solemn ceremonies—coronations, weddings, funerals.

Collectors have found other related tribes of West Africa more willing to part with their golden art. In various collections here and abroad, one finds little Ashanti gold but much from the Baule, Anyi and Attie tribes of the Ivory Coast Republic.

Akan gold

Collectively, with the Ashanti and several other tribes, these people are all classified as Akan, a subgroup of the Twi people of the West African forest. Anthropologists have ample evidence of the common origin and culture of the Akan people. For example, they all speak similar dialects of the Twi language and practice a form of matrilineal succession to the throne: As with the Asantehene, any Akan chief is either the brother of the former ruler, or the son of his sister.

The commonality of Akan culture can also be perceived in their artistic use of gold. Sometimes it is difficult to distinguish between Baule, Anyi and Attie objects, but one finds in such objects strong echoes of Ashanti artistry.

In 1972 I visited the village of Kouassiblekro near Bouaké, the capital of the Baule people of the Ivory Coast. Once part of the Ashanti, the Baule migrated westward across the Komoe River to their present area after a bitter feud over the royal succession in 1730.

At Kouassiblekro, the chief of 29 villages in that district sat for his portrait (see photograph at right, bottom). Dressed in brilliant plangi-dyed robes, N'Goran Koffi was flanked by a small group of attendants several of whom held tall gold-covered staffs topped with animals. One might easily mistake these for the linguists' staffs of the Ashanti but, among the Baule, they are displayed as insignia of the chief's office. Koffi's hands gleamed with gold rings. One was in the form of a scorpion, another a lion, both almost identical to rings I had seen in the Ashanti's Prempeh II Jubilee Museum at Kumasi. I also noticed that around his neck Koffi wore a circular gold disk very similar to round pendants the Ashanti use as conveyors of souls.

At the time, Koffi had eight wives and 17 children. Among his women, one appears on the cover holding ceremonial *chasse-mouches,* or fly whisks, made of

A gold-covered elephant, perhaps symbolizing a dead chief, gleams against the rich primary colors in the robes of Ebrie chiefs of the Ivory Coast.

Attended by men with insignia of office and drummers, one of whom (far left) is a slave, a Baule chief wears a gold watch along with traditional ornaments.

gold-covered wood and horsehair imported from the Sudan. In addition to his large family, Koffi is entitled to own slaves. One of them is standing near a drum at the far left in the photograph. According to Baule custom, a number of slaves—sometimes as many as 60, depending on the rank of the chief—will be beheaded upon the chief's death.

A contemporary and mildly jarring note among all the traditional Baule gold was the watch on Koffi's right wrist, one of his most prized possessions. It was made for him in 1965 by an Ashanti jeweler, probably from older pieces which he had caused to be melted down for his new ornament. The jeweler was imported to work in Koffi's own house to insure that none of the familial gold was stolen. The watch is purely decorative and prestigious: It has no movement.

Prestige and ancient gods

On display at the chief's house were a number of small wooden sculptures covered with gold leaf. When I asked their purpose, since they were unsuitable for personal adornment, I was told that they too were for prestige only, and I was reminded of bejeweled American millionairesses, few of whom would be so frank. Nonetheless, most Baule ornaments have a deeper significance, particularly the older objects.

Many such ancient objects can be seen in the collection of Paul Tishman of New York, the greatest collection of Akan gold pendants and animals in the world. Though it has some Ashanti material, it consists principally of Baule and Attie pendants as well as a group of small, often humorous, animals cast in gold. Many of Tishman's pieces, along with sculptures in wood, terra-cotta, bronze and other materials, have been touring American museums for the past several years.

In the Tishman collection one finds many gold pendants in the form of crocodiles and fish, reminders of the people lost in crossing the Komoe River during the Baule migration. Indeed, it is to such collections one must go to see the pure and ancient Baule gold, for unlike the Ashanti, they and other Akan people have let much of it escape from the tribes.

After the Baule, I visited a town called Anna near Bingerville where the Ebrie live, a tribe named for the lagoon around which they settled hundreds of years ago. The Ebrie are mainly fishermen, another part of the Twi people, and the occasion at Anna was a gathering of the Ebrie tribal chiefs (see page 29). The chiefs wore cloth hats decorated with carved wood covered with gold leaf. Some were in robes of Kente cloth imported from the Ashanti and they carried with them their insignia of office, gold staffs topped with animals, such as the exquisite elephant in the photograph above, left.

Cast-gold pendant on forehead of an Ebrie chief's daughter combines a human face with ram's horns, a symbol of fertility and a motif on which many Akan tribes produce numerous artistic variations.

Throughout Africa, animals have particular meanings which vary from tribe to tribe, region to region. In the forests of the Ivory Coast, a particularly dangerous elephant is thought to be the reincarnation of a deceased chief (and sometimes it is thought to be inhabited by an elder of the neighborhood: When the elephant is shot, the elder will also fall at the same instant, according to legend).

The ram holds an equally specific though more benign meaning, and it is a noticeable theme throughout the art of the Akan tribes. Among the Baule, the ram represents Nyame, the god of fertility. In the Tishman collection are a large number of Baule and Attie pendants, some four inches in diameter; they are variations of the theme of the ram's head, each different from the next. Though produced within the strict canons of African tribal tradition, each piece has been endowed with its own identity and its own spirit, testifying to the endless inventiveness of the African artist. In several, the ram has been combined with a human motif, with the horns sweeping down around a human face.

Golden threads to the past

At Bingerville I saw how these pendants were worn. Each of two daughters of the principal chief had four pendants suspended around their heads below the hairline (see photograph at left). These were old pendants which have been in their family for generations and which are worn by the mothers, wives and daughters of the tribe's notables at important ceremonies.

At Anna, I also observed the Ebrie craftsmen making new gold objects. In Baule country I had seen fly whisks like those on the cover being carved from wood and had watched the gold leaf, beaten into paper-thin pieces, being cut to fit the carved wood and glued on with resin from local trees. In addition to gold leaf and wrought gold (repoussé), the third main technique seen in Akan gold is called *cire perdue,* or lost-wax casting (SMITHSONIAN, October 1972), now only rarely practiced in West Africa. At Anna, I watched Ebrie fishermen, sitting out of the sun in a small open-sided shed, producing cast-gold pendants by this ancient method and I experienced an awesome sense of the continuity of the African past and present. For much of the long history of Africa has been written in gold.

At a time when Europe was cloaked in its Dark Ages, a vast and cosmopolitan empire had grown up in the Western Sudan. Called Ghana (from which the present Ghana took its name upon independence), it lay astride and dominated the trans-Saharan trade routes. The first of a series of great merchant empires, Ghana was built upon the desire for gold in Arab and later, in European countries, and on the need for salt in the hot African lands to the south.

Ghana still flourished in the 11th century when William the Conqueror was invading England and when a far less well-known migration of Sudanese tribes took place: The people who would be known as Akan moved from the western grasslands of the African bulge down to the rain forests of the Guinea Coast.

The simple equation of gold and salt dominated the trans-Saharan trade routes for centuries while Ghana was absorbed into the empire known as Mali, extending the merchants' hegemony farther westward. Mali was then absorbed by the empire of Songhai which, in turn, fell in 1591 to Moroccan invaders.

Tales of fantastic riches fill Arab accounts of these times. In 1324, Mansa Musa, the Muslim emperor of Mali, stopped off in Cairo with 100 loads of gold on a pilgrimage to Mecca. There he left enough gold to depress the local value of the precious metal by a considerable margin. Later, on *his* pilgrimage to Mecca, Askia Muhammad Touré, the king of Songhai, brought 300,000 pieces of gold to hand out as alms.

The source of this gold was in the West African mountains, valleys and in the rivers and estuaries along the seacoast, where Africans independently developed the techniques to mine it. Mining was strictly regulated, with permits necessary for prospecting. Nuggets were reserved for the chiefs; the miners received a third of their value in gold dust. Much West African gold was alluvial: "In the sands of that country is gold, treasure inexpressible," wrote a traveler from Spain.

The late-coming Europeans

By the time the great merchant empire of Songhai began to absorb Mali, tales of the fantastic riches of Africa had reached Europe and the Italian city-states had made sporadic efforts to pierce the Muslim domination of the African trade. But it was the Portuguese who, in the 1440s, first sent their superior ships around the African bulge to the Guinea Coast. There they found so much gold they called the area El Mina, the mine, and built a string of forts to protect their interests. The largest of these, Elmina Castle, built in 1486, still stands.

The British followed, as did the Dutch and the French, trading avariciously with the Muslim merchant kings, knowing only that the gold originated somewhere south of Timbuktu and north of the Guinea Coast (from which the British got the metal *and* the name for their gold coin, the guinea).

For several centuries African gold was Europe's main supply line, while the African merchant-kings, with the shrewdness born of a long history of political

organization, played the European nations off one against the other.

But with the growth of European plantations across the Atlantic in the Americas came an unprecedented growth in the demand for yet another African commodity, slaves. And with the slave trade came disruption, new smaller African political units and finally a firm European foothold on the African continent.

One of the few new African kingdoms of this period that was not brought into a state of disorganization by the disruptions of the slave trade was the Ashanti kingdom, the paramount gold-traders of the forest. They quickly developed a profitable slave-trading organization, strengthening their political power in the bargain, and by the early 1800s the Ashantis ruled more than half of modern Ghana and parts of what is now the Ivory Coast. After losing to the British in 1874, Ashanti resistance continued until they were finally devastated in a colonial war in 1901.

Today the rich gold fields are no longer so productive and in West Africa as elsewhere one pays for gold at the going international rate. One still sees camels that have brought salt down from the Sahara in the ancient manner and along the ancient trade routes to Timbuktu, but it is paid for in local currency, not gold. Yet early Arab accounts of the court at Mali sound much like what I witnessed at Kumasi in 1971. In the swords, pendants and talismen still being fashioned and used, and in what remains of the ancient Akan ornamentation, one has a glimpse of the great glittering days of African gold.

In regalia, with their staffs topped by gold and cloth hats with carved wood covered with gold leaf, the chiefs of the Ebrie meet in the town of Anna.

By John C. Brandt

The solar wind blows some good for astronomy

Only recently discovered, this flux of solar particles sculpts our magnetic field and is a valuable tool for probing nearby space

From the time of the high priests of Central America's ancient sun kingdoms to the bikini-clad bodies strewn across today's resort beaches, sun worshipers have been awed by the sun's regular appearance, its light and its heat. Most of us today are also aware that the prodigious energy of the sun somehow powers all of life on this planet and, assured by astronomers that the sun will continue to shine beneficently for a long time, we are satisfied and pass on to other things.

Nonetheless, reports of solar flares, sunspots and other solar phenomena periodically impinge on the public consciousness—reminders that things are not so simple. Only recently people began to hear of something quite new—the "solar wind." Virtually unknown until 1958 and extensively measured for the first time in 1962, the solar wind—a steady emission from the sun's corona of subatomic particles, mostly protons and electrons—has proved to be a significant component of the entire solar system. Scientists are just beginning to understand its effects on such permanent residents of interplanetary space as meteoric dust, the moon and the planets themselves, including our own.

But the widespread actions of the solar wind—and indeed its very existence—were first perceived through the study of those infrequent visitors to the solar system, comets—specifically comet tails. There are two major types of comet tails and both can be seen in the photograph of the comet Mrkos (see pages 32-33). A homogeneous tail curves back toward the path of the comet's orbit opposite to its motion; it consists chiefly of dust particles which scatter sunlight and produce a yellow glow. The other tail streams out almost directly away from the sun and is visible as a blue glow when seen in color photographs. Spectrographic analysis has shown that this kind of tail is a gas composed primarily of ionized molecules, the most prominent being carbon

Dr. Brandt was a coauthor of the article about the Gum Nebula in the February 1972 issue, and wrote a graduate-level book, The Solar Wind.

In a demonstration of solar wind, NASA scientists beam an ionized gas into a magnetic

field (caused by a magnet in the model Earth). The result is an "auroral" glow around the globe.

monoxide—that is, CO molecules that have lost one electron and therefore carry a positive electrical charge. Physicists call such an ionized gas a *plasma*. (See "Physicists probe the ultimate source of energy," SMITHSONIAN, December 1972.)

Astronomers long thought that the weak pressure of light from the sun was sufficient to force the small dust particles and gas from a comet's head back into its tails. But here and there along the ion tail one can see denser clouds of expelled gas or knots, as they are called. These knots have been seen to move down the tail and away from the sun at far greater accelerations than can be accounted for by the pressure of sunlight.

In the early 1950s an eminent German astrophysicist, Ludwig Biermann, suggested that the force needed to move the knots at such speeds could arise from the effect of the corpuscular radiation—an ionized gas or plasma streaming out from the sun at velocities of hundreds of miles per second. Since comets showed the effects of the corpuscular radiation regardless of the

Ludwig Biermann, a German astrophysicist, first noticed the solar wind's actions in the tails of comets.

Below the smooth dust tail of the comet Mrkos, seen in 1957, is a narrow, kinky tail of ionized

time or location of the comet, Biermann suggested that the solar corpuscular radiation is emitted from the sun in essentially all directions and at all times.

That the sun gives off some of its mass (its "corpus"), as well as energy, was not an altogether new or surprising idea. The sun's visible disk, called the photosphere, is surrounded by a tenuous, extremely hot plasma called the corona. Various independent methods had shown that the corona's temperature is in the vicinity of four million degrees Fahrenheit. Typical protons in a gas that hot have a velocity of 110 miles per second; some are much slower, some are much faster. A small fraction of the protons in the corona must, it was reasoned, exceed 270 miles per second, which is the velocity protons need to escape the sun's gravity.

By the late 1950s, astrophysicists, notably Sydney Chapman of the Geophysical Institute, University of Alaska, and Eugene N. Parker of the University of Chicago, had produced mathematical models for the extended solar corona. In Parker's model there was an outflow of solar particles dense enough, it turned out, to account for the effects of Biermann's corpuscular radiation on comet tails.

Not every scientist accepted this as a fact, but it was a sufficiently interesting hypothesis that detecting devices were placed on board the earliest satellites to seek any trace of what Parker had by then christened the "solar wind." The first actual measurements of this phenomenon were made by the Russian satellite Lunik III in 1959, and any remaining doubts about its existence were removed in 1962 by the extensive measurements made by the American Venus probe, Mariner 2. Since that time most of what we have learned about the solar wind has derived from instruments on board space probes.

Approximately one decade of space measurements has established the properties of the solar wind as it blows into the vicinity of the Earth. It is a completely ionized gas consisting chiefly of some 80 protons and electrons per cubic inch on the average, though the density varies between one-tenth to ten times the average. The temperatures of the protons and electrons are roughly 100,000 degrees Fahrenheit and 400,000 degrees Fahrenheit respectively. In addition to protons and electrons, heavier nuclei have been discovered in the solar wind, such as helium, carbon and oxygen.

Near the Earth, this constant stream of the sun's corpus flows at an average speed of about 300 miles per second, though the speed, too, varies—from one-half to twice the average.

One might expect that the solar wind, like sunlight,

gas, or plasma, that streams out more directly away from the sun, the result of the solar wind.

would flow radially from the sun, that is, as if on a straight line from the center of the sun outward into space. But measurements made near the Earth have shown that, as these particles stream from the sun's corona, their paths bend slightly in the direction the sun rotates. This slight aberration is of profound significance: It means the sun's rotation is slowing down.

The slowdown is the result of both the solar wind and the sun's magnetic field. Everyone is familiar with the action of the Earth's magnetic field on a small magnet called a compass: A force is exerted which lines up the compass needle with the Earth's magnetic field lines (see drawing at right). A magnetic field also tends to deflect protons and electrons—such particles spiral around magnetic field lines and move along their length rather than moving across them.

The sun also has a magnetic field and as solar wind particles stream outward, they cannot cross the magnetic field lines. Thus, the solar wind flow draws out the sun's magnetic field and carries it along. The magnetic field lines act like "elastic strings" which connect the sun and the solar wind. As the sun rotates, these "strings" exert a force that pulls the solar wind particles in the direction of the sun's rotation.

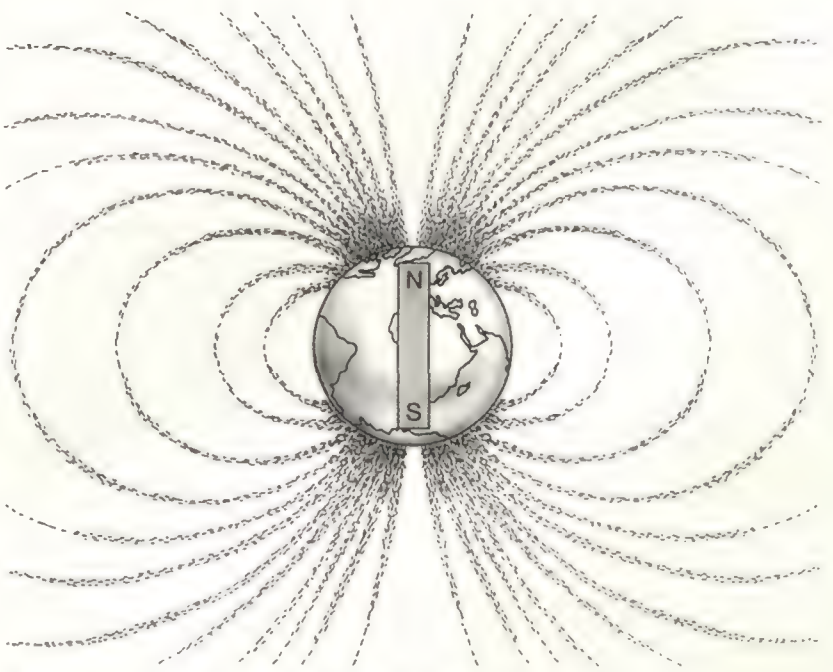
If the sun's magnetic field were strong enough, the entire solar wind would rotate once every 27 days, as the sun itself does, but the actual magnetic field is only strong enough to cause a small deflection.

So the sun pushes on the solar wind to make it rotate faster. But the crucial point is that, according to one of Newton's laws, every action produces its own reaction. The solar wind is also pushing on the sun to make it rotate more slowly.

Measurements made near the orbit of Earth have shown that the solar wind motion in the direction of the sun's rotation is about four miles per second, and from that figure we can calculate the rate at which the sun is being braked. At present rates, the sun's rotation would be slowed to 40 percent of what it is today in some four billion years.

There are, of course, many stars in the universe with the same mass and photospheric temperature as the sun, and, of these, astronomers have found, the younger stars rotate faster than the older ones. This is now easy to explain—if these stars have magnetic fields and stellar winds similar to the solar wind. But closer to home, in our solar system, we know that the solar wind interacts in some way with almost everything. The moon is a case in point.

Satellites placed in lunar orbit have determined that the magnetic field in the solar wind apparently passes through the interior of the moon and comes out the



Earth's magnetic field: It is as though a bar magnet was embedded inside the planet and, as in the classic game with magnets, iron filings are shown pulled into positions along the field lines.

other side relatively undisturbed. If the moon had a metallic core, as does the Earth, this could not occur. Thus, the solar wind permits us literally to probe the lunar interior, and the evidence, backed up by other observations (but not without some controversy), points to a cool, rocklike interior.

Of course, the protons and electrons themselves do not pass through the moon. Instead they are absorbed by the rock and dust on the moon's surface. This may explain why the lunar surface material is rather dark and reflects only a small fraction of the sunlight. Laboratory experiments in which terrestrial rock powder has been bombarded with a homemade solar wind have indicated that this is the case, and now that genuine lunar samples are available for study, it is only a matter of time before this question is answered. Space probes are also beginning to return more precise insights into the solar wind's effects on Mars and Venus.

The most thoroughly studied effects of the solar wind so far are its interactions with the Earth, and here again we are dealing with a magnetic field. While currents deep in the Earth's interior are believed to cause the Earth's magnetic field, it is easier to think of a powerful bar magnet embedded in the planet with its axis pointing to a spot near Thule, Greenland.

The Earth's magnetic field lines, if left to their own devices, would not be unlike the pattern formed when you place a strong magnet beneath a piece of paper on which iron filings have been sprinkled (again, see drawing). But the particles in the solar wind cannot move across the Earth's magnetic field lines any more than they can cross the field lines of the sun. Thus, some 40,000 miles in space in the direction of the sun, the solar wind collides with the Earth's field lines. The field lines, unable to sustain themselves against the impact of the solar wind, have been blown in an opposite direction, away from the sun, forming the Earth's geomagnetic tail, which is some 800 Earth radii (or three million miles) long and perhaps even longer.

It is very much as if the Earth, surrounded by its invisible magnetic armor that we call the magnetosphere, were a projectile in a wind tunnel. Where the solar wind separates and flows around the projectile Earth is where the Earth's magnetosphere terminates. This is called the magnetopause. And just as in those split-instant photographs one sees of bullets or of prototype planes in a wind tunnel, a bow wave forms about 16,000 miles beyond the magnetopause. This comes about because the relative speed of the medium (air or solar wind plasma) with respect to the obstacle (the bullet or the Earth's magnetic field) is faster than the speed of sound in the medium.

The region between the bow wave, or shock, and the magnetopause is called the magnetosheath, an area inhabited by the solar wind after passing through the shock and by irregular magnetic fields, tattered fragments of the sun's "elastic strings."

In a diagram, this complex interaction of solar wind and magnetic field may seem like a relatively stable affair. Yet highly sensitive compasses have shown that the Earth's magnetic field is subject to almost continuous aberrations. And changes in the density and velocity of the solar wind occur frequently. Occasionally solar flares erupt from the corona; vast dense streams of protons and electrons collide with the Earth's magnetic field, distorting it further and causing a wide range of geomagnetic storms and other activities, ranging from the magnificent sight of an aurora to a teletype machine typing out nonsense all by itself.

The solar wind was discovered so recently that it is barely mentioned in most undergraduate astronomy textbooks, and its role in the solar system and beyond has only been glimpsed. (The answer is not known, among other questions, as to how far out from the sun the solar wind blows.) Not only will more be learned about this prominent presence in our corner of the universe but the solar wind itself will serve as an increasingly valuable tool for understanding other astronomical phenomena. For example, far beyond the Earth the solar wind collides with interstellar gas and observing its effects may shed light on the interstellar gas unobtainable by other methods. The solar wind, indeed, may become a large laboratory for investigating the nature of plasmas, the most common material of the universe.

The sun's disk (here blacked out) is surrounded by the corona, a tenuous glowing gas at four million degrees Fahrenheit. That is hot enough for some particles to escape, forming the solar wind.

A great new natural resource has been discovered in Tampa

Treasure is where you find it, and in Tampa it's being found every day in the garbage. Steel cans—the "tin" cans that soft drinks and other products come in—can live again in other forms, and in Tampa they do.

Here's how it works. People in Tampa who buy their products in steel cans just throw the empty cans in their garbage pails. At the municipal incinerator, magnetic separators pull the cans out of the garbage—at the rate of more than 100 million cans a year.

Refuse At Incinerator

Now those cans will be sold to a local steel mill, which will melt them down and recycle them into steel reinforcing bars for construction.

The beautiful thing about this process is that it benefits everyone. Citizens do their ecological duty without strain. The city saves landfill space. It also makes money by selling the cans. And a precious natural resource is conserved and reused, again and again.

In Tampa, glass and aluminum are returned by hand to collection centers. Only steel has the unique quality that permits it to be separated magnetically from household garbage.

Some 350 cities now have collection centers where people turn in cans that they've separated from their own garbage. Last year their total effort brought in an estimated 800 million cans.

In just 17 cities like Tampa, where magnetic separators are being used, the recovery rate is about two-and-a-half billion steel cans a year.

The system makes so much sense that it's no surprise the way it's spreading. By the end of 1973, 11 more cities will have joined the ranks of those with magnetic separators.

Magnetic Separator in Action

It doesn't matter how a municipal system disposes of its garbage. Whatever the system, steel cans can still be separated by magnets.

Most people seem to prefer one-way cans, and if they want to keep getting them, recycling has to be workable. We know it is.

Steel Cans Recycled Into New Steel

If you'd like to help your city get on the bandwagon, write for a copy of **Progress Report on Recycling.** It has all the facts on steel can recovery, tells how your city can learn more about magnetic separation. Give it to your city officials. Help them enter the magnetic age.

Tinplate Producers
American Iron and Steel Institute
150 East 42 Street, N.Y. 10017

Name

Company

Address

City

State Zip

Steel
the recycled material

Tinplate Producers
American Iron and Steel Institute

Bibles on which Presidents have been sworn in include Truman's Gutenberg facsimile at the top. Left of it, opened, is Franklin D. Roosevelt's family Bible in Dutch; closed, on the right, is McKinley's. Hayes' Bible lies open to a picture of his First Lady, "Lemonade Lucy," so-named because she wouldn't serve liquor in the White House; beside it is Kennedy's Douay, a Fitzgerald family Bible. The Washington Bible, huge and illustrated, is still owned by the Masonic lodge that first lent it. Below it is Wilson's open book. Lincoln's bears a blue seal. Closed at bottom: Eisenhower's and Cleveland's.

The inaugural trappings on view

By Peggy Thomson

Bibles and ball gowns out of the past prove popular mementos of a lively American tradition—the start of a Presidential term

A Presidential inauguration is one of the few state ceremonies vouchsafed us by our forefathers. Wary of all the trappings of royalty, they guaranteed us a republic that was mostly work and little play—even at the risk of dullness. But at inauguration time Americans get an eyeful of ritual: bands, banners, uniforms, swearings-in, morning dress and evening gowns and flag-draped ballrooms.

Some of the appurtenances of inauguration have been collected through the years. Bibles (opposite), most of them used for oath-takings, were displayed in 1968 at Washington Cathedral. They ranged back to the one used by George Washington when he set this precedent at his first inauguration in New York. The Constitution does not require a Bible for the ceremony, but members of the First Congress felt one was necessary, and it was borrowed from a Masonic lodge.

Some Presidents swore on a stack of two Bibles. Truman laid a hasty hand on a White House Bible when he was given the oath after Roosevelt's death. In 1949 he used both the White House Bible and a facsimile of the Gutenberg Bible. Eisenhower, in 1953, used both the Washington Bible and one given him by his parents when he graduated from West Point.

President Nixon has used the same two family Bibles for all his inaugurations so far—twice as Vice President, once as President.

With great care, these old volumes are preserved by their owners. But the gowns worn by our First Ladies require even more delicate maintenance.

One of the two or three most popular exhibits in the whole complex of Smithsonian museums is that of the First Ladies' gowns, including some worn at inaugural balls. This display in the Museum of History and Technology at Washington, D.C., is constantly inspected to assess the condition of each dress. Margaret Brown Klapthor, curator of political history, carries out the chore with two assistants while the area is blocked off. "We try to pick a miserable winter day so we don't get complaints from Maine to California."

The staff, stocking-footed and wearing lab coats and white cotton gloves, pads among the White House hostesses, dusting, cleaning, ducking extended mannequin arms, rearranging skirts so new portions of fabric are exposed to the light. A camel's hair brush will do to flick dust from Mrs. James Monroe's décolletage, but Mary Todd Lincoln's requires a specially adapted hand vacuum cleaner. It is not that the latter mannequin is more amply endowed, but that it wears velvet, the other silk. Nor is fragility of fabric always related to age, for Elizabeth Monroe's early 19th-century silk is in better shape than Ida McKinley's inaugural gown of 1897, which, having the dubious advantage of modern chemicals to add luster to the silk, is splitting.

One at a time the First Ladies are being removed from the hall to change bodies. Plaster-cast busts with wooden frames are being replaced by lightweight plastic forms offering hips, knees and ankles for the better hanging of the finery. Conservation of their irreplaceable dresses involves rigorous protection from rough handling, strong light, dust, carpet beetles, moths, roaches and silverfish. It involves monitoring 72 degree temperature and 50 percent humidity day and night, since clothing fibers are known to twist and rub against each other with humidity changes and, if abrasive dust is present, to wear themselves through.

"Clothing has a finite life-span. We don't know how long it is," says Mrs. Klapthor, "maybe 400 years." That being so and clothing on display being somewhat more perishable than if it were in dark storage, the curator is extending the life of her collection with two projects. One is the acquisition of a second string of dresses associated with the First Ladies even if they may not have made it to inaugural balls.

The other project is a meticulous documentation of each dress on display, carried out by New York fashion designer Sara Taft. After seven years, she is not yet quite halfway through the task of recording every detail of the dresses—their construction, materials and

Peggy Thomson is author of SMITHSONIAN *articles on the Institution's freeze-dry lab (May 1971) and on the school journal* Foxfire *(December 1971).*

Smithsonian displays Patricia Nixon's mimosa-yellow gown, worn by the First Lady at the 1969 ball.

trim. For each dress she makes paper patterns and muslin mock-ups and creates a workbook complete with swatches, thread samples, rubbings of lace and embroidery, and diagrams sufficient for a complete record for study down to the last bugle bead and flounce. In case seamstresses 300 years hence may have neglected the art of double French piping, Mrs. Taft includes step-by-step directions.

No one is going to copy the dresses. A single copy, even if labeled, Mrs. Klapthor feels, would cast doubt on the authenticity of the whole collection. For research purposes, though, the information is to be complete—how Julia Grant's brocade bodice is faced, lined and piped, how it is fastened with lacings and a double row of hooks and eyes; how Dolley Madison's seven-color embroideries, no two alike, are scattered over her Empire dress and underskirt; how the whalebone stays enclosing Sarah Polk's 18-inch waist are stitched in place and the lace layers in her ladder panel trimmed with rosette bows shirred thus and so.

Recent visitors to the hall have found Martha Washington in a white embroidered muslin. Her hand-painted, ribbed silk (see page 42) lies in a lined drawer awaiting a long conservation project. A Smithsonian technician using a number 12 needle, two sizes finer than any commercially available, will sandwich the dress in an almost invisible brown silk net from France, called crepeline. A Smithsonian expert in these matters, Robert Organ, was asked whether a switch from sitting to standing position, once Mrs. Washington returns to the public, would ease the strain on the fabric. It was Mrs. Washington's wish that the First Lady should receive her guests seated. Organ's decision: Design a special chair seat and let Martha have her way.

Parisian style or Girl Scout simplicity

Mrs. Taft's current project is Angelica Van Buren's royal blue velvet, with its full skirt ten yards around and its simple and timeless styling. "You could wear it today," says Mrs. Klapthor, "if you could get into that waist." The bodice of the dress currently under the designer's scrutiny lies on a bed of specially buffered tissue paper while Mrs. Taft flicks her tape measure over it from seam to seam and then removes her white gloves to add to the copious notes she is making.

Mrs. Taft says she gets a sense of each wearer's personality: "who was the devotee of Paris fashion and who was the Girl Scout." She copies the names of Mrs. Van Buren's couturiers, *Delphine et Rouelle.* "You miss the sophistication of Edith Galt Wilson's dress because it's dark and simple, but it's high Parisian style." Since dresses in earlier days were worn a lot ("nobody spared them"), she also has alterations to

Mannequins depicting three recent First Ladies stand in a setting based on the White House East Room—Lady Bird Johnson, Jacqueline Kennedy and Mamie Eisenhower's inaugural ball gowns are displayed.

contend with. Mrs. Polk's dress had clearly been passed down to a taller and ampler relative. Microscopic study determined the earlier seams, in two-ply rather than three-ply thread.

Mrs. Taft faces such challenges as the elaborate brocades of Benjamin Harrison's wife and daughter by reminding herself that "I can do anything if I could do Florence Harding"—as intricate a creation as Mrs. Taft has ever threaded her way through: "an underbodice completely beaded with little milk beads, a bodice with Paisley-type motifs in rhinestones and pearls, a net undertrain and a train and an overdrape to the skirt that wraps around side and back and . . . ." In sum, "a very taxing type of dress."

Repairs are minimal, except on the dress of Andrew Jackson's niece, the earliest inaugural ball dress in the collection, which was received with its original skirt burned. Techniques to restore Eleanor Roosevelt's peeling pearls and Jane Pierce's tarnished silver dots are being researched. White silks tend to go creamy with age, while Lucretia Garfield's lavender satin has turned gray.

No dress, once it enters the museum, is dry-cleaned because of the long-range effect of chemicals. Besides, a spot like the black mark on Mrs. McKinley's skirt is a bit of history. She acquired it when she collapsed at her husband's ball in the Pension building.

The First Ladies used to stand two by two in bare glass cases, blandly regarding the public from all-alike faces. The faces today are unchanged, the museum having decided to bestow on the First Ladies an equality they never enjoyed in life. And the lighting, to

spare the fabrics, is somewhat dim. But the hairdos differ and the public clearly identifies them with the actual White House occupants. Within four years a carpet that was expected to be indestructible had worn through, especially before the figure of Jacqueline Kennedy in her stalk of white *peau d'ange* and chiffon.

Mrs. Klapthor, leading docents in a brisk one-hour tour of the hall, is able to cover in a breathless sweep the history of the Presidency, of White House furnishing, of fashion from berthas to Empire waistlines, from hoops and hobble skirts and flapper hemlines, from leg-of-mutton sleeves to spaghetti straps—not omitting the accessories: parasols and turbans, shawls, feathers and fans, mourning pins, combs, tiaras and a bedpost watch-holder. She includes discreet anecdotes from her dealings with the First Ladies themselves. Edith Galt Wilson, never mind how unwelcoming it looked, wished to be positioned facing the wall to show off the back of her dress.

There is not one Blue Room represented, but a pair. The first dates from the Grant administration, with black borders on wallpaper and dado, a decor thoroughly suited, Mrs. Klapthor feels, to an effervescent, young country. Here stand the ladies of the bustle period with their rich materials and trimmings: "Lemonade Lucy" Hayes, who served no alcohol; Julia Grant, whose brocade, a gift from the Emperor of China, was stiff enough to stand independently; President Cleveland's sister Libby, looking sufficiently withdrawn to be conjugating Greek verbs as she claimed to do in receiving lines.

In the second of the Blue Rooms, monochrome robin's egg blue, Cleveland's young wife, apparently in an attempt to look matronly, wears a dark dress bor-

Martha Washington's ribbed silk is embellished with a pattern of American wildflowers and insects. The material is hard to preserve, partly because Martha is seated, the way she wished to receive guests.

dered with fur. Mesdames McKinley, Roosevelt and Taft make up an elegant trio. And the second Mrs. Wilson, wearing the black she favored for her trousseau, appears to be mourning her white-clad predecessor.

In 1912 two public-spirited ladies began assembling the collection by persuading Mrs. Taft to donate her inaugural dress. Sometimes heirs or First Ladies were not so obliging. Lucretia Garfield thought her dress too ugly. On her deathbed she changed her mind. The great-grandson of Abigail Adams, on being asked for a dress worn by the first hostess of the White House, replied that his ancestors "were not in the habit of keeping their old clothes." A blue Canton crepe was found to represent her in the collection. Jefferson's daughter Martha, his White House hostess, is represented only by a Paisley shawl. Descendants explained that all the old Jefferson dresses had been "cut up and worn to rags" during the hardships of the Civil War.

Grace Coolidge once wrote to Mrs. Klapthor to ask about substituting something inconspicuous for the red chiffon velvet flapper dress with its hiphugger rhinestone belt and tiered short skirt which represents her and is the only short dress in the hall. "What an ugly period as far as women's clothes are concerned," she wrote. The curator convinced Mrs. Coolidge that as a period piece and an example of high fashion hers was a perfect choice.

Today's First Ladies know what's expected. Pat Nixon sent around her dress, shoes and evening bag promptly in 1969. She was stricter with herself than Lady Bird Johnson, who first got a bit of mileage out of hers with a few subsequent wearings. Or Mamie Eisenhower, who once sent a White House chauffeur to borrow back for a day her comfortable pink shoes.

Julia Tyler, President John Tyler's second wife, first wore this in Paris when presented at the court of Louis Philippe, three years before her marriage. It is white silk mull with flowered embroidery.

How to get the for your money.

Buying stereo can be confusing.

One friend says you have to spend a mint. Another tells you about a "special" bargain on a foreign-made set. And overly enthusiastic salesmen might just confuse you with all kinds of technical specs.

Well, fact is you do have to know a little bit about stereo to make sure you're getting the most music for your money. But you don't have to be an engineer. Or even a buff. Just an intelligent shopper armed with a few basic facts.

So here they are.

Start with the Receiver

A good music system starts with a good stereo receiver. (A stereo receiver is a combination of a stereo amplifier and AM/FM/FM stereo tuner.) So that's a logical place to begin your buying.

But picking the right receiver is no picnic. Because receivers by themselves don't do a thing you can see or hear. They just receive tiny sound impulses from a record, tape, or radio station, magnify them millions of times, with as little distortion as possible, and drive the speakers with the magnified impulse.

All of which means that two of the most important things to look for in receivers are how much distortion takes place and how much power there is to drive the speakers.

Distortion ratings (called T.H.D.) are simple. The lower the number the better. For example, Sylvania receivers CR2742 and CR2743 both have a rating of 0.5% at full power output, which is considered good.

Power is a bit more complicated. There are several kinds of ratings. But the one that counts is the "continuous" or RMS rating. Here the higher the number, the more power you have to drive speakers. A receiver like the Sylvania CR2742, with a continuous power rating of 25 watts per channel, can easily drive four big speakers. If you want an even larger system, with speakers all over the house, the Sylvania CR2743 can handle them with a continuous power rating of 50 watts per channel. If you can't get a continuous power rating, be suspicious!

The next things to check are the features. A good stereo receiver should have solid-state circuitry, Field Effect Transistors (FET's), and ceramic filters. We won't go into their technical functions here, but be sure to look for them while buying. Quality receivers will have them.

Your receiver should also have a full-function jack panel (like the one on the back of the Sylvania CR2743 shown below) that allows you to add extra speakers, tape decks, headphones, or other equipment. And make sure there's built-in capability to adapt the new quadraphonic sound systems in case you want to expand in that direction.

Every Sylvania receiver, for example, has built-in Phase Q4 matrix four-channel circuitry to enhance ordinary two-channel stereo. This gives the effect of four-channel sound. In addition, you can get true (discrete) four-channel sound simply by adding our special new DMQ2784W quadraphonic converter. (And of course in both cases you need two extra speakers.)

Finally, check the price. As a guide, the Sylvania CR2742 gives you 50 watts total continuous and all the rest for $199.95.* The CR2743 gives you all that and 100 watts total continuous for $279.95.* So no matter what brand you choose, make sure you get just as much for just as little.

most music

Onward to the Speakers

The technical stuff's out of the way. Now comes the fun part.

The only way to buy speakers is to listen to them. Compare the different sounds from the different sizes. Ask the salesman about "air" or "acoustic" suspension speakers. In general, they deliver the most satisfying speaker sound.

Make the salesman work a little. Switch back and forth between the big, medium, and small speakers. Play it by ear. The ones that sound best to you are the ones to buy.

Just keep your eyes out for a few things while your ears are busy. Make sure the receiver driving the speakers you're hearing is the same as the one you're buying. Otherwise you won't be getting the same sound once you get the speakers home and hooked up to your receiver.

And remember, the word "speaker" refers to two things. It means the individual speakers... woofers, tweeter, etc. But it also refers to the whole speaker cabinet, which generally contains more than one individual speaker. Be sure to check out how many speakers there are in any speaker cabinet. Two, a woofer for low notes and a tweeter for high ones, is a minimum. Bigger speakers, like the Sylvania AS125A, will have at least three: a woofer, a dome mid-range, and a dome tweeter.

Prices range from $149.95* for the big Sylvania AS125A with three speakers to a cabinet, down to $59.95* a pair for the Sylvania AS1706W with two speakers each.

But above all else, pick the speakers that sound best to you.

Now It's the Turntable's Turn

There are a few manufacturers who specialize in making turntable mechanisms. It's their thing, and their product is definitely superior.

The only trick to buying a turntable, then, is to make sure that you get one whose guts come from one of these specialists.

Any audio manufacturer should be more than happy to tell you who made his turntable mechanism. For example, Dual (one of the big names) made the changer in Sylvania's T2705 Automatic Turntable. Garrard (that's another big one) made the changer in our model T2703.

Ask for magnetic cartridges on your turntable. They're more sophisticated and pick up sound impulses better than ceramic cartridges. Both Sylvania turntables have them.

Things like cue-pause control (which allows you to gently raise and lower the tone arm to any band you choose) and anti-skate control (which equalizes pressure on both walls of a record groove to give less sound distortion) are usually standard on quality turntables like a Sylvania.

Price guidelines are $139.95* for the T2705 and $79.95* for the T2703.

E-x-p-a-n-d-i-n-g

Adding tape facilities is a simple way to expand your basic stereo system.

You can add a Cassette Play/Record Tape Deck like the Sylvania CT160 to play pre-recorded cassette tapes over your speaker system. Or you can record your own in two-channel stereo.

Or, you can go the 8-track route, with a Playback Deck like the Sylvania ET2750W. That way you can use car stereo tapes at home, and vice versa.

Good Luck!

By now you're a lot smarter about stereo. You know basically what to look for. And you've got some guidelines on what to pay.

So now's the time to go out shopping. Look around. Compare. Get the most music for your money.

And even if you don't pick a Sylvania, enjoy your stereo!

*Based on manufacturer's suggested list price.

GTE SYLVANIA
A part of General Telephone & Electronics

Michael Ayrton with his *Personal Janus;*
the right-facing head is a self-portrait.

By Alfred Friendly

Daedalus reborn: Michael Ayrton makes a new maze

This sculptor, identifying himself with the myth of the Minotaur and labyrinth, sees it as a metaphor of the human condition

In the spacious living room of Michael Ayrton's farmhouse in North Essex there is a small self-portrait: a classical herm, a square bronze pillar scarcely a foot high surmounted by Januslike double heads, one Ayrton's own and the other the bull's head of the Minotaur (opposite).

To Ayrton, both a captive and a creator of metaphor, he, as well as all mankind, *is* the Minotaur—half man, half beast—and the maze in which the creature is forever imprisoned is the condition of all human life.

The metaphors of this 51-year-old British sculptor, painter, etcher, filmmaker, art historian and novelist incline to be as labyrinthine as the maze itself, which dominates them all. Thus, his most recent bronzes, in what he calls the "Reflector" series, embody the double concept that man struggles inside the half-protective, half-restrictive maze of his circumstances and, further, that his brain is itself a maze (which it physically much resembles) wherein dwell foreign entities that possess him and drive him—inhabitants which, looking into himself, he endlessly seeks to discover and master.

It is this idea that is expressed in his most recent work to be displayed in America, a 22-foot-high sculpture (page 53) newly installed in the entrance courtyard of the S. S. Kresge Company International Headquarters in Troy, Michigan, a suburb of Detroit. On a base 7 feet high and on opposite sides of a 15-foot sheet of amber-toned reflective glass are two bronze half-heads 9 feet high, each completed by its own reflection. When viewed from the rear, each head is seen to be cavitated by carved recesses in which are set other partly abstract head forms. These are the brain's occupants who have installed themselves, uninvited but not to be expelled, in the mind and psyche.

It was a long road, as tortuous and baffling as the maze that Daedalus built, before the young disciple of Henry Moore became a Daedalus himself. Ayrton was born in London in 1921, the son of Gerald Gould, the poet, essayist and literary critic, and Barbara Ayrton, the socialist politician, member of Parliament and, ultimately, chairman of the British Labour Party (a vigorous suffragette, she was jailed for her crusading ardor 60 years before Women's Lib was ever dreamed of).

He left school at 14, suddenly and inexplicably smitten with a passion for art. After brief and unsuccessful attendance at various British art schools, he turned to copying Old Masters in Vienna, then wandered through Europe and settled for a while in Paris, painting steadily, before coming back to Britain at the outbreak of World War II. Invalided out of the RAF, he returned to the world of art and over the next decade worked his way through a series of specialized areas—painting, drawing, stage design, filmmaking and art criticism—to considerable acclaim.

Acclaim, but also some deprecation—"of which one component," C. P. Snow once wrote of him, "is that anyone who can do so many things must just have drifted into art through accident and caprice. That is, that he is at heart a superior, accomplished, but undedicated dilettante." Nothing, Lord Snow went on, could be more untrue. But what *was* true as of 15 years ago was that while having become a successful artist, Ayrton was not yet a celebrated one.

An epiphany near Naples

By 1956, after much travel and work in France and Italy, where he fell under the spell of the early Renaissance, Ayrton had had more than a score of exhibitions of his paintings and drawings, mostly one-man shows, but he had yet to achieve fulfillment either in medium or in message. He corrected the first inadequacy when he realized that his drawing had been merely a precursor to, or an argument for, moving on to sculpture, and thereupon turned to working in three dimensions and having the resulting figures cast in bronze.

The solution to the second deficiency came later,

The author wrote the SMITHSONIAN *article (December 1970) on Aquileia. Ayrton's newest book,* Fabrications, *will be published in this country in February by Holt, Rinehart & Winston.*

Maze Maker (1965), in bronze, is one of Ayrton's many interpretations of the mythical Daedalus.

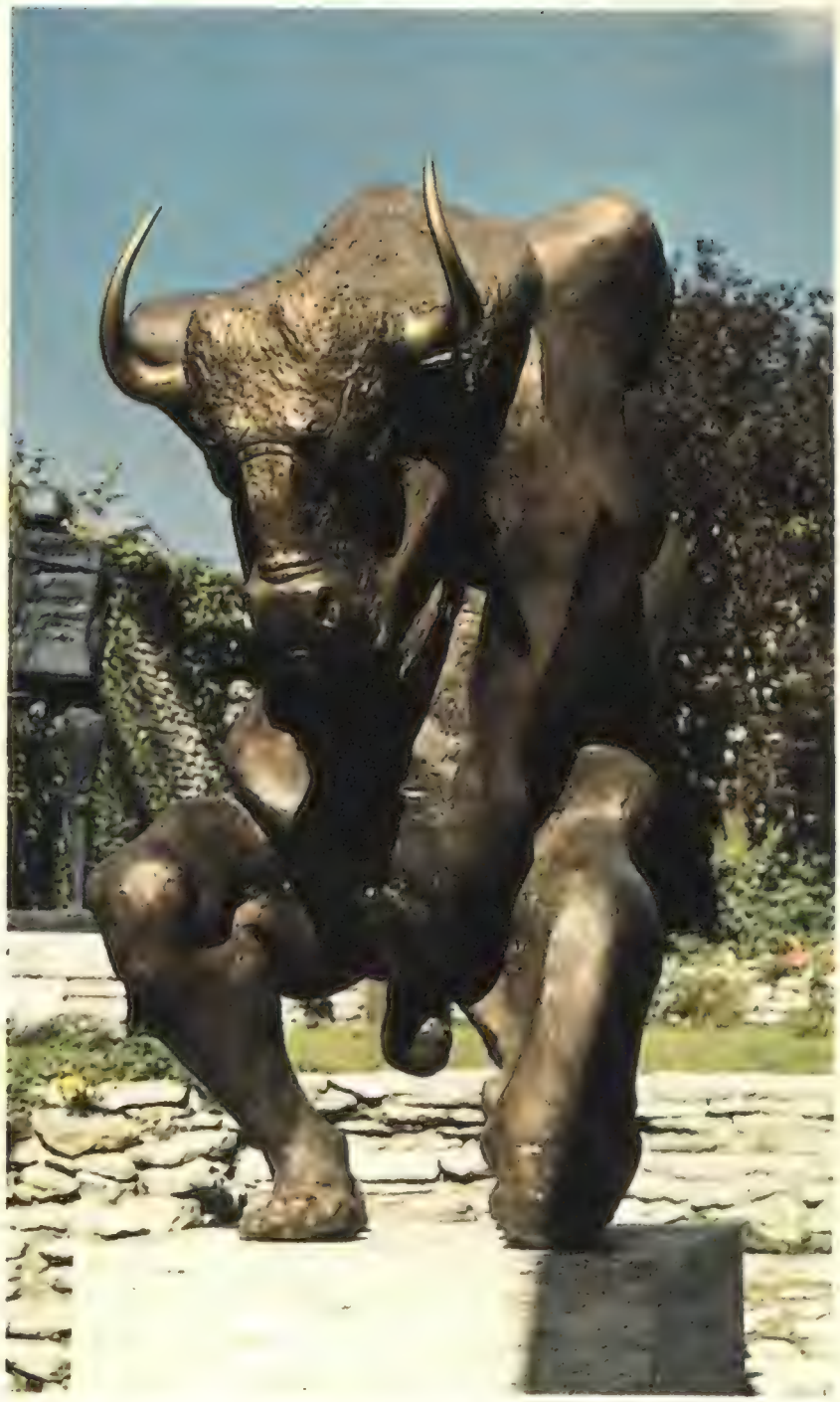
The late Armand G. Erpf had Ayrton design this maze for his country estate in Arkville, New York.

but with the suddenness and stunning effect of a thunderclap: On May 11, 1956, Ayrton experienced an epiphany, almost in the literal sense of a manifestation of a deity, that profoundly changed the course of his subsequent literary and artistic creativity. It was on that day, he later wrote, that "I became the dedicated chronicler of a myth." The myth was that of Daedalus, the maze maker.

The occasion was Ayrton's first sight of the acropolis of Cumae, on the Tyrrhenian coast just west of Naples, by tradition the site of the first Greek colony in Italy and the sacred precinct of the Cumaean Sibyl, oracle of Apollo, with her sanctuary deep in the honeycomb of caves within the cliff. Some years before, Ayrton had heard and been transfixed by *Les Troyens,* Berlioz' musical reworking of Virgil's *Aeneid*—an opera which, Ayrton wrote, "remains for me the greatest of all 19th-century music drama." He was thus disposed to be moved at the site where, according to legend, the Trojan hero landed with the survivors of the sacked city to found a new nation.

But Cumae is also the place where Daedalus, archetype of all metalworkers and craftsmen, touched down after his winged escape from Crete and where he thereupon built his famous temple to Apollo. Of all the associations of that dramatic site, it was the myth of Daedalus and the metaphor of the Cretan maze he had constructed to imprison the monster son of King Minos' wife that, in turn, were the ones to capture and imprison Ayrton.

"I was directed as on no other day in my life," the sculptor recalled in a recent conversation. "I was really possessed. The whole atmosphere was numinous; I felt the presence of a god."



Anyone who penetrates to the center of the Arkville maze meets a six-foot bronze *Minotaur* (1969-70).

His sculpture turned at once to Daedalus, to his vainglorious son Icarus, to Pasiphaë who crouched inside the imitation cow that she commanded Daedalus to build in order to lure the huge white Cretan bull, to the hapless brute (the Minotaur) that was born of that union and, finally and above all, to the symbolism of the maze as both fortress and cage.

As the years went by and as Ayrton worked with the lost-wax process of bronze casting, he began to identify himself increasingly with Daedalus, legendary inventor of the technique and its carrier to the western Mediterranean. With no more license than that customarily accorded to artists and without absurd posturing, Ayrton now seriously feels himself to *be* Daedalus—not in any gross sense of being a reincarnation, but as a cast from a prototypical mold of the painstaking, persistent master craftsman.

"The process of identification with one's own work is not easy to describe," Ayrton once wrote, attempting it nevertheless. "It takes place at different coexistent levels. Icarus is remote from me. I have no heroic vein in my nature and can only regard him with wonder and a certain lack of sympathy. The Minotaur is part of me, as Daedalus is . . . albeit a different part."

So much a part, indeed, that between 1964 and 1966 he wrote an "autobiography" of Daedalus in an attempt, futile as it turned out, to escape him. The result was *The Maze Maker* (Holt, Rinehart & Winston, 1967), which the publishers call a novel and around which something of a cult has grown up among a select group of hypnotized readers.

As in the book, so with Ayrton's figures: The maze becomes their controlling environment, the physical representation of the human condition in which they

live and against which they contend. Ayrton sees the maze as having the dual function of protecting the center against intrusion but at the same time serving as a prison for those within it.

Ayrton has doubtless made himself the world's greatest authority on the history and development of mazes. He argues that the probable initial conception of the maze as a symbol "in its most profound and ancient form [came from] the inexplicable yards of intertwining intestines that man first revealed when he first inserted his knife into his victim." He finds evidence of the maze symbol in ritual dances described in Homer and other classical literature and in even older sources, such as the Sumerian epic of Gilgamesh. There is substantial evidence of maze rituals in connection with erecting the walls of fortified cities. By ancient convention, a maze contained seven "decision points," where a wrong turning compounded error. If Joshua had to march seven times around the walls of Jericho, it may have been to unwind their maze magic.

Besides the actual mazes themselves (Herodotus describes the enormous one of Pharaoh Amenemhet III; Pliny tells of one on Lemnos; there was another on Samos; and even a subterranean Etruscan one below the tomb of Lars Porsena of Clusium), the symbol of the maze appears in scores of forms. These were mostly protective, as in the adoption of the Greek "meander" pattern for the borders of Roman mosaics and textiles and the robes of Byzantine emperors.

In the 12th century the maze began to be represented in Christian churches; in the cathedral at Chartres there is a circular one on the floor, 40 feet in diameter, around which those who broke their vows to go on pilgrimages crawled on hands and knees in penitence. Topiary mazes proliferated in 17th- and 18th-century England, as exemplified by the great hedge labyrinth at Hampton Court. And, finally, a vestige of the maze lingers on today in the children's game of hopscotch.

For himself, Ayrton finds the symbol even farther afield. He sees it in the brain, as noted above, in the chambered nautilus, in Laocoön struggling with the entwining serpents, in the caves of the Sibyl at Cumae and in mirrors wherein one forever encounters and then loses oneself.

So intriguing was Daedalus' account in *The Maze Maker* of how he contrived the labyrinth to hold and hide the Minotaur that, on reading the book in 1967, a New York financier, the late Armand G. Erpf, called on Ayrton to build him one. Ayrton did, making a maze of stone and brick walls eight to ten feet high on Erpf's estate at Arkville in the Catskills (pages 48-49). It contains some 200,000 bricks, winds in a coil almost a third of a mile long and is 200 feet across. It has the traditional seven "decision points." In the foci of the elliptical structure are two chambers, one inhabited by a huge bronze of the Minotaur himself, the other by an equally large sculpture of Daedalus and Icarus, the son leaping from his father's shoulders to fly upward to the sun and to his destruction.

Ayrton solemnly insists that no one who ever en-

Icarus II (1959) depicts Daedalus' son, whose wax wings melted when he flew too close to the sun.

tered the maze has found his own way out except himself and Erpf's then four-year-old daughter, who did so without a misstep.

A second challenge arose from *The Maze Maker*. In one episode, where he is obliged to impress the metal-working gnomes in the caves of Cumae with his skill, Daedalus casts a golden honeycomb using the oldest and purest form of the lost-wax process: The original to be cast was itself made of wax. Ayrton's detailed description of how it was done—of how Daedalus must have done it, for legend says he did—led a New Zealander, George Wooler, to demand that the modern Daedalus do the same for him. Ayrton's description turned out to have been easier to write than the casting was to make, but, after 16 attempts, it was done, complete with golden bees (below).

Ayrton placed real ones on the comb, correctly reckoning that their skeletons or carapaces would be fired off like the wax of the comb, leaving molds for the gold to fill. But he eventually had to use a centrifuge, a device that Daedalus would scarcely have had available to him. Ayrton argues that Daedalus could have achieved the same effect by swinging his mold in a circle at the end of a cord. Since Ayrton apparently could not do it that way, he probably has to concede that Daedalus was the better man. Ayrton has cast a second golden honeycomb, which stands on the mantel of his fireplace.

Little Golden Honeycomb was cast by the lost-wax process, using a real honeycomb and real bees.

Courtesy R. S. Johnson—International Gallery, Chicago

Encounter (1969), in Ayrton's "Reflector" series, combines cast bronze with sheets of Perspex.

Curiously, although Apollo emerges as the dominating force in *The Maze Maker* and in the life of its narrator, Ayrton never seems to have attempted to make a portrait of the god. Similarly, and somewhat to his own bewilderment, he never tried to paint the Minotaur, although he has done scores of bronzes and drawings of him. Also, so obsessive has been the fixation, Ayrton recently returned to an art form he had dropped 30 years before and produced a folio of ten etchings of the life of the Minotaur. Surely among the most powerful graphic representations he has ever done, the series portrays the man-beast from birth to tortured maturity. In the course of it he discovers by stages his elements of humanity and brutishness and is left in the end to live terrifyingly alone, prisoner not merely of the maze but of his own horrified apperception of himself. The metaphor is clear: Here is Everyman.

A few years ago Ayrton attempted his own escape from the captivity of the maze and the concept that had taken mastery over his art. He started to sculpt figures of a man piercing, or clawing, his way through a high wall in front of him. But in none of the many versions that Ayrton attempted did the man ever get

through. Sometimes only the hands or arms and sometimes the head and a shoulder worm through the gap, but never the whole figure. Ayrton concluded that man cannot escape and neither could he; that the half of his nature that is physical and of the flesh does not really will itself to psychic liberation but clings to the protection and safety that the maze/fortress accords it.

In Ayrton's view, the best man can hope for is a continual voyage of exploration and discovery of himself and a continuing struggle in the process. Hence his present work, exemplified in the massive piece at the Kresge building: a brooding search in which man's image both appears through a glass darkly and is also reflected by it, sometimes and from some angles completed, at other times left fractured, and at all times occupied by beings or forces that have intruded from the outside.

Ayrton's drawings, etchings and sculpture are to me inordinately powerful but profoundly pessimistic; there is irony but no humor. This is the more remarkable since he himself is a witty and genial man, of sunny manner and outgoing disposition, maintained despite chronic poor health.

A personal maze in East Anglia.

With his wife Elisabeth, a widely known novelist and writer of cookbooks, he has lived in an expansive 16th-century farmhouse in East Anglia since 1951. Its beamed interior and the broad surrounding garden constitute a museum of his works, mostly bronzes. In recent months he has renovated what was the old coal cellar, whitewashing and deftly illuminating it to make it in its starkness a superb background for still more pieces of sculpture.

Next to the house is a huge barn, his workshop, where he carries through every phase of his creations, whether the size of a fist or a house, from conception, sketching, sculpting and mold making up to the final point of metal casting, which is done in a foundry near London. One bench in the barn, littered with a mad collection of shells, bones, grotesque rocks, gnarled wood and fragments of animal skulls, Ayrton refers to as his "palette." The term is not quite accurate, for these objects—except for some pieces of bone in some sculptures—are not the actual ingredients of his creations (Ayrton loathes the kitchen-sink-assembly school of art and, for that matter, nonrepresentational art in general). They serve rather, it would seem, as subjects for the artist's eye and imagination.

The house, the barn, the foundry are all part of Ayrton's personal maze in which he produces his works as a means of getting out, just as Daedalus made the wings which permitted his escape from the labyrinth. But even Daedalus extracted himself from one maze only to find himself in another. To Ayrton the lesson is clear: The fate and purpose of man is to struggle for freedom, certain of never fully attaining it.

Courtesy R. S. Johnson—International Gallery, Chicago

Above: Another of the "Reflectors," *Reflex I* (1969). Opposite: Ayrton with *Reflective Head II* (1971), placed in the courtyard of the S. S. Kresge Company International Headquarters in Troy, Michigan.

By David Snell

The Weills deal in the world's rarest of stamps

From their New Orleans shop the brothers, Raymond and Roger, deal in millions, buying and selling the jewels of philately

One evening close to midnight a few weeks ago, the telephone rang in one of the elegant old French Quarter houses in New Orleans. The overseas operator was on the line with a call from somewhere in South Africa. The party wanted to speak to either of the Weill brothers, Roger or Raymond. He got both. Awakened in their separate suites, the two bachelors simultaneously reached for bedside phones.

As the world's best-known dealers in rare stamps, Roger G. Weill, 63, and Raymond H. Weill, 59, long ago became accustomed to such interruptions of sleep. They are owners and equal partners of Raymond H. Weill Company, a New Orleans firm as renowned among stamp collectors as Lloyd's of London is among insurance underwriters.

The company occupies an 11-by-34-foot cubbyhole tucked among the museumlike showrooms of the Vieux Carré's famous Antique Row. The dimensions—postage-stamp size—do not suggest the mind-boggling philatelic transactions in which the Weill brothers routinely are involved.

Stamp collectors who go after the great treasures of philately will tell you that there is something sublime in the mere possession of a rare stamp, irrespective of how badly anyone else may want it. Quests and acquisitions become ferociously competitive. These things are clearly understood by Roger and Raymond Weill. They picked up the hobby from their father, an executive of the company that developed the Popsicle, and they have pursued it with the devotion of Trappist monks. The multimillion-dollar business they have today is essentially an extension of their zeal. They admit, a little sadly, that they are their own bitterest rivals. They suffer sorrow bordering on physical pain when they part with a great philatelic item, even at a handsome profit.

But they hold nothing back. A client who seeks their help in building up a fine collection must realize that he has the pick of the Weills' almost priceless inventory, which is stored in bank vaults in New Orleans and another city (undisclosed). He must understand that he has the right of first refusal of anything they can locate and buy in his behalf. Otherwise he would look upon their firm as a rival and could have no confidence in dealing with them.

In philately there are no ideologies—and no time zones. Thus when rare items are offered for sale anywhere in the world, it is a matter of interest to collectors and dealers everywhere. Often the word will reach New Orleans in the wee hours. That is what happened on the night of the contact from South Africa. Unsure of the time differential, the caller cheerily said it was 8 o'clock in the morning where he was, and he hoped he had not caused an inconvenience.

Though the caller could not have known it, there is something about the Weill brothers and their life-style which is strongly reminiscent of Sherlock Holmes, Dr. Watson and the lodgings in Baker Street. Raymond, with his clipped speech and manner of precision, is the Holmes—or perhaps Basil Rathbone—to the affable and faintly bemused Roger's Dr. Watson, or if you will, Nigel Bruce. Had the real Sherlock Holmes been listening in that night, he would have deduced instantly that the caller was not a stamp person. He pronounced the brothers' name "Wile." Raymond and Roger say "Weel," and among stamp people the preferred pronunciation has achieved practically the status of basic expertise, such as the fact that England produced the world's first stick-on stamps in 1840.

The South African identified himself as the son of a recently deceased collector and inquired whether the Weills might be interested in buying his father's stamps. He said the collection was on its way to an agent in a certain European city and that the family would be pleased to receive a bid from the Weills if they cared to inspect it. The proposal was not earthshaking but the Weills were aware that the sale could be one of the more important philatelic events of the year. They had known the collector by reputation and they knew that he had an international collection containing some highly desirable items.

David Snell wrote the SMITHSONIAN'S *articles on the Houston Rothko Chapel (August 1971) and naturalist-artist Carrie Dormon (February 1972).*

Roger Weill, left, and his brother Raymond look through the front windows of their shop.

Stained-glass window was made for them in Belgium; it copies an Italian painting of a philatelist.

And so, in effect, "Come, Watson! The game's afoot!"

A day or two later, Raymond flew to Europe. Roger stayed home to run the company and take care of Scruffy, the inquisitive miniature schnauzer. The South African's collection measured up to expectations. By prearrangement, the sale was not to be by auction but by submission of sealed bids for the entire lot. Raymond went over it carefully, checking catalog values and studying the subtle things which bear on quality and desirability. He and one other dealer submitted bids.

The Weills lost. The competitor took the prize with a bid that was significantly higher. Raymond does not know whether the man was bidding in his own behalf or for a client who was willing to go higher. With impeccable discretion and taste, Raymond will say only that his own bid was in excess of $200,000—"about all, it seemed to us, that a professional could profitably pay, even though we were very keen to have that collection." He will not reveal the identity of the deceased collector or the place in South Africa where he had lived. He will not disclose the name of the agent or the European city where the sale took place. Under the ethics of professional philately, such things are for the person who made the acquisition to say.

Was the trip a complete loss?

"No, not really," said Raymond, with the look of a man whose memory has just been pleasantly refreshed. "Nowadays it's so easy to get to Europe that you don't need an assured success to justify the trip. And besides, I did grab a good lunch."

The Weills frequently are asked why—apart from the proximity of Antoine's, where they take a great many of their midday meals—they continue to use New Orleans as a base for operations that have expanded so vastly. Wouldn't it be better to relocate in, say, New York, for the greater convenience of their clients? There was a time when that suggestion might have made good sense.

The late Josiah K. Lilly jr. of Indianapolis, who was their exclusive client and one of America's greatest collectors, practically insisted that they open an office in Manhattan so that they'd be close to the major auctions. When the Weills declined, he took his business elsewhere. But several years later, in 1959, Mr. Lilly asked them to take his account back again. He stayed with them until his death. The Lilly collection was sold during 1967 and 1968 at a series of auctions in New York and brought more than $3.1 million. Many items were repurchased by the Weills—at substantially higher prices than Mr. Lilly had paid for them originally.

In New Orleans the Weills have all the mobility and communication with clients they feel they need. "It's our city and we love it," they say.

Roger and Raymond were born in St. Louis, where their father, the late Fernand Weill, had taken the family to escape a New Orleans yellow fever epidemic. They returned in 1923. In 1932, during a school vacation in the darkest period of the Depression, Raymond advertised some duplicate stamps in his collection and sold them at a profit. Under his name the brothers and their father, who by then was retired from the Popsicle Corporation, opened a shop on Royal Street next door to the present location.

"Our father had a greater stamp knowledge, I think, than Raymond and I will ever have," says Roger. Fernand taught them well, for the company has had success all the way.

Never mind those first-day covers

The Weills have little interest in flood tides of first-day covers from hither and yon—and disdain such synthesized offerings as the Apollo moon covers that found their way onto the German market. As the true rarities gain more and more in value, most dealers have found it difficult to maintain inventories. They simply direct the flow of traffic between people trying to assemble collections or dismantle them. The Weills do keep a big inventory of rare stamp items and in that respect they are rather rare items themselves. They decline to state the net worth of it all or tell where the more fabled of their treasures are stored. Nor do they give out figures on the volume of business they do—"To be perfectly frank," says Raymond, "it would sound like boasting."

As it happens, the Raymond H. Weill Company has indeed been doing some tasteful boasting with an occasional full-color advertisement on the back cover of *The New Yorker*. Tourists who have noticed the ads

and have sought out the establishment must be astonished to find it presided over by two owlish brothers, a pretty young office manager and a smartly barbered miniature schnauzer.

One ad displayed the "Penny Mauritius" (p. 62), the Weills' greatest treasure. Better than any other example the acquisition of this frail envelope with its two curiously flawed penny stamps demonstrated the flair and daring which have brought Roger and Raymond to their position of preeminence. They bought it at a New York public auction in 1968. Sitting side-by-side on the back row with Roger doing the bidding by the prearranged signal of looking steadily at the auctioneer, the brothers raised their offer to the almost unbelievable figure of $280,000. Again and again the auctioneer tried for a higher bid, apparently without success. Finally, down came the gavel, to a cry of "Sold!" Then came another cry, a wail, from someone else whose prearranged signal the auctioneer had missed. It was a moment of excruciating embarrassment for the auctioneer, but the Weill brothers graciously declined to make an issue of it.

With a remarkable display of *sangfroid,* the Weills continued to bid by jumps of $20,000 and took their prize at $380,000—$100,000 more than the figure at which the gavel had first come down. The drama made the front-pages all over the world. But the news stories largely overlooked the point that the cover bearing the two "Penny Mauritius" stamps is one of a kind, worth any figure the Weills might choose to put upon it. "The letter it contains," says Raymond, "was written by Lady Gomm, wife of the governor of Mauritius, to a certain Thomas Jerrom in Bombay. No one knows what it says, because the cover is too fragile and too valuable to risk unfolding it."

Happy life in the French Quarter

To people who know them, it is the surest bet in the world that Roger and Raymond Weill are happy with what they have made of their lives. Like any other businessmen, one or the other of them will go away on vacation—hunting or fishing. But what they like best aside from stamps is their life in the French Quarter: fine restaurants, conversations with good companions, evenings at home among their French impressionist paintings, the spectacle of Mardi Gras spilling past as they look down from their second-story gallery.

And tomorrow? There is always the prospect of new discoveries, new acquisitions, new summonses from far away. Meanwhile, some of their friends are hoping that Roger and Raymond will keep an eye on Scruffy the next time they haul out the "Penny Mauritius" from whatever bank vault it is kept in. Dogs are notorious shredders of paper and lickers of stamps.

Roger Weill, elder of the brothers, checks an album. They keep a large inventory of stamps.

Some rare Weill stamps

Accidents of printing which produced some of these philatelic rarities seldom occur now because of modern techniques, so their value increases. Many of these stamps are also duplicated in the Smithsonian Institution collection. The Weill brothers examined these copies by Lee Boltin to explain fine points of the stamps. In most cases they agreed to estimate roughly their evaluation of the items or to quote current catalog prices.

Largest known block of unused ten-cent stamps of 1847. The Weills evaluate this group at $145,000.

Used block of 1869 with inverted centers is "worth $200,000."

Train and ship are inverted on commemoratives of the 1901 Pan-American Exposition. They flank a

A difference in color makes these strips of the 1893 Columbian Exposition interesting to philatelists.

1918 airmail, one of which the Weills gave to the Smithsonian. Auction price: $34,000.

Inversions occurred when sheets were fed the wrong way into a second color printing press.

The normal upper row brings only about $100. The lower four—the color error—catalogs at $24,000.

St. Louis bears, printed in 1845, had two 5s altered to 20s. For six, Weills' price: $40,000.

Most Pony Express covers such as these are valued at $1,000 at least. The bottom envelope, addressed to Abraham Lincoln in Springfield, Illinois, is the most exciting, worth several thousands. Lowest cover of left-hand column bears a "garter" stamp on upper left corner showing rare east-west travel. Value: $17,000.

Oblong perforations, for use in mailing machines, make these four-cent stamps, issued in 1908, worth $5,500 each as unused singles. But this strip of five would probably fetch more than $40,000.

Special printing (left) with Zachary Taylor catalogs at $9,500. The 30-cent is printed on grill so cancellation cannot be erased.

Bisected stamp at right dates from early 1850s when shortage of six-cent stamps led postmasters to slice a 12-center in two.

Inversions still sometimes occur. These Canadians appeared a few years ago to commemorate the St. Lawrence Seaway. Block value: about $8,000.

Hawaiian stamps of early 1850s, called "missionaries," are worth more than $50,000.

"Most celebrated item in all philately"—Mauritius cover with two one-penny stamps of 1847. "POST OFFICE" was engraved instead of "POSTPAID."

Raymond Weill holds the Mauritius cover. The $380,000 he and Roger Weill paid for it is the "highest price ever paid for a single philatelic item."

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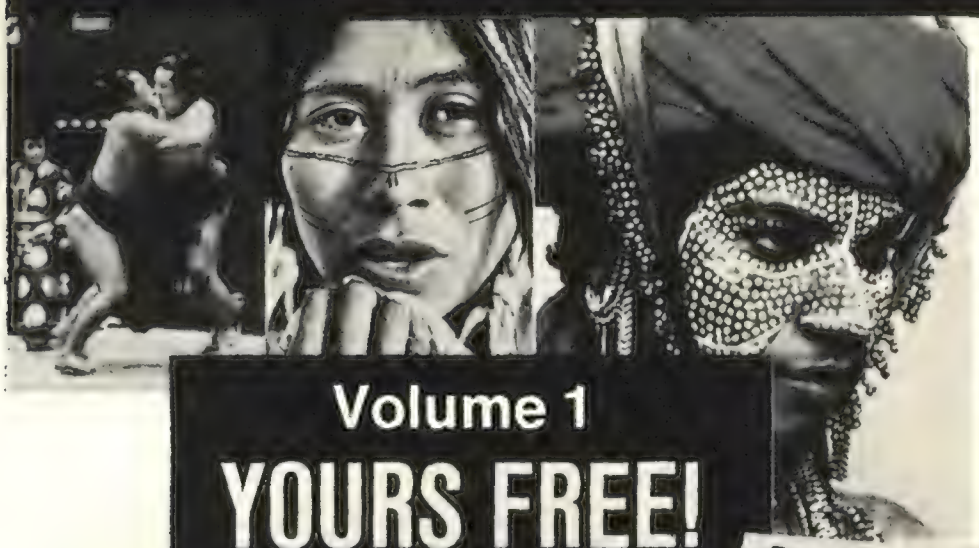

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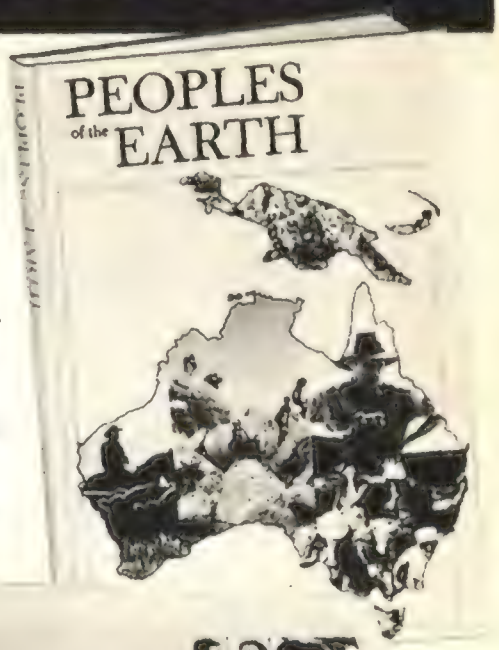

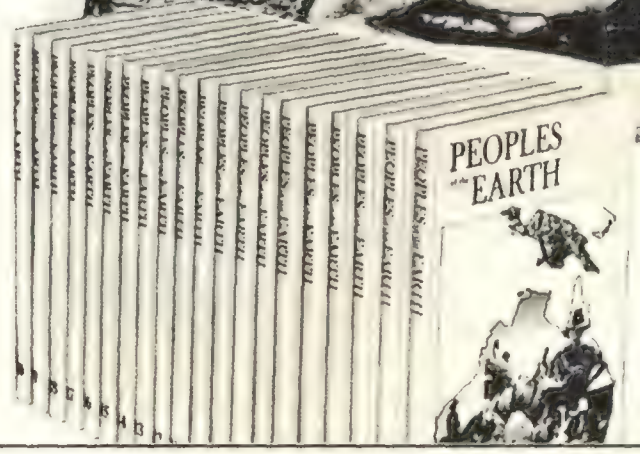

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By Victor B. Scheffer

The last days of the sea cow

Gentle giants, these 25-foot relatives of seals were discovered by Vitus Bering and were gone forever only years later

A sea cow shares the Bering Strait kelp beds with an otter in Alfred G. Milotte's painting.

The last person to see a living sea cow may have been Nikita, age 14. He did not know it then, for the year was only 1768, and no one supposed that the giant beasts were nearly gone. They had been discovered in 1741 by the sailors of the Bering Expedition.

Nikita had a job as messman with the company of fur traders and hunters who stopped on Bering Island in 1768. Now, in June, the ship lay at anchor in Commander Bay. The greening hills rose from the sandy beach, and the flowers were beginning to shine on the grave of Vitus Bering as they had shone every summer for 27 years.

Nikita listened long to wardroom stories of a monster animal said to inhabit the seaweed of Bering Island, a dark beast the size of ten draft horses.

"Sea cow" it was called, or "Kapustnik"—the sea-cabbage eater. The German sailors called it "Borkenthier," the animal with skin like the bark of a tree. Its flesh was good to eat, as tender and sweet as the best grade of beef. At some places on the body, the fat was nine inches thick and it yielded a fine-flavored oil, like the oil of sweet almonds. A man could even drink it from a cup.

But the sea cow was hard to capture. One man could snag the animal with a sharp iron hook, but then 40 men with ropes must be standing by, ready to land it.

In the early morning Nikita went ashore with the first workboat and climbed to a low grassy meadow where the hunters had camped for many a year. Bones! Bones everywhere! Bones of harbor seals and sea lions, fur seals, foxes and fishes. Here were pairs of white, dismembered ribs and vertebrae, longer than the reach of Nikita's arms. They were surely the remains of sea cows.

Even the newest bones were now crusted with moss and lichen, and were scarred with the teeth marks of foxes. Staring at the boy was a skull like a demonic mask, or a jungle bird long of beak. The roof of its cranium was gone, knocked out by some forgotten butcher. Nikita rubbed his fingers over the bones, then struck out toward the northwest where the ship's chart showed a stream valley. Here he rested for lunch on a fair slope above the sea. A white gull above his head slid in for inspection and spoke a warning ka! ka! ka! Then the boy was surrounded by a zone of stillness.

Suddenly he heard a strangled snort. Fifty paces below him a black shape, like the hull of an overturning boat, rose from the kelpy shallows. He froze. At one end of the thing, moving ripples resolved into a rubbery face. There was no hair on the scabby hide, no

ear showed and (it seemed at first) no eye. Long filaments of brown seaweed disappeared through a slit in its face. Now the beast made a sculling motion with its forked tail; its forebody climbed from the water, exposing an arm that was more like a fleshy paddle than a proper arm.

It rolled on its back and Nikita saw that it had no hind legs at all below its bulging froglike belly. It carried the signs of old age: scars and deep wrinkles, and patches of pale fungus or peeling skin. It often raised its head and paused for a moment as though listening for lost companions.

The white gull dropped from the sky, landed on the beast, and with an air of long practice began to pick at something in the folds of the armpit. Now and then the beast turned in a half circle, struck by a surging wave, and now and then it voided a dropping like the dung of a giant bull.

It repeatedly sank from sight, to emerge a few minutes later, softly sighing, water streaming from its back, slippery weed festooning its shoulders. On these forays beneath the surface it rooted and pawed at the kelp; its wake through the green water was strewn with broken stems and fronds.

The boy watched in fascination, afraid to shift his cramped and chilled position, while tears dripped from his nose. He sneezed—and when he looked up the animal was gone. It reappeared quietly, offshore. As it stared toward the land, the boy was brushed with a feeling he could not understand, as though he had heard a door closing in an empty house. He shivered, and walked slowly toward camp. He never told anyone what he had seen until he was a full-grown man with a small boy on his knee.

Many years passed, then, before Russian adventurers, following the shorelines of the North Pacific Ocean, the Bering and Chukchi Seas, knew surely that the sea cow would not return. And other years passed before men of science arranged and analyzed the evidence, a fragment here and there, into a natural history of *Hydrodamalis gigas,* the giant among sea cows.

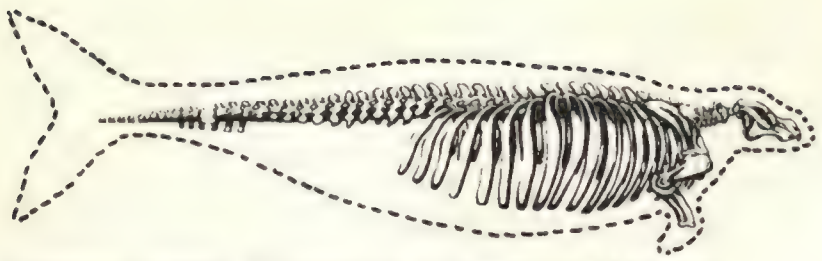
You will understand that I could not have known Nikita and, in fact, that the boy is fictional. All the rest of my story is true.

I myself am linked in a small way with the history of *Hydrodamalis,* for, in 1941, I met Stejneger of the Smithsonian Institution, the biographer of Georg Wilhelm Steller, the only naturalist ever to see a living sea cow. Leonard Stejneger (1851-1943) would have been 90 years old when I met him that day in the National Museum of Natural History. I remember a tall, white-haired man with a courtly manner. How I wish I had written down all that he said.

He told, with a twinkle in his eyes, of hijacking various bones of a sea cow from Russian workmen who had dug them from the sands of Bering Island and had boxed them for shipment to St. Petersburg. Through the quiet exchange of a handful of gold, the bones were redirected to Washington, where the composite skeleton can now be seen in the museum. Official reports do not mention the skeleton deal, which was probably effected in 1882 or 1883.

After Steller and his companions abandoned ship on Bering Island in November 1741, they suffered through a subarctic winter and the following summer fashioned a small boat from the wreckage of the old one. Meanwhile, Steller was feverishly collecting plants, animals and minerals, writing field notes, nursing the sick and burying the dead. When the time came in summer to leave the island for Kamchatka, there was no room on

Victor B. Scheffer, a widely known fish and wildlife biologist from Washington, wrote The Year of the Whale *and* The Year of the Seal.



Drawn in 1869, this sketch of a sea cow skeleton included artist's guess at the body's outline.

the boat for natural history specimens. In spite of his pleading, he was allowed to take only his notes, a few dried seeds, and a pair of the queer, horny, palatal plates that had served the sea cow for teeth.

After his safe arrival at Kamchatka, Steller forwarded his specimens and manuscripts to St. Petersburg. He did not live to see his writings in print, but died at the age of 37, in the midst of a Siberian winter, thousands of miles from his family in Germany. He was buried on the bank of the Tura River; thieves disinterred his body for the red cloak in which it was wrapped; the remains were reburied; the river in time undercut the bank and, unseen by man, took the great naturalist away. So today all that is known of the sea cow as a living creature is contained in posthumous literature —edited, copied and translated without the help of the one man who knew the animal best.

In Steller's account of the sea cow there is a major discrepancy which has lain unresolved in the absence of the original journals. He wrote in one place that the full-grown animal weighed "200 pud," or 4.5 tons U.S., and in another "1200 pud," or 26.8 tons.

Suspecting that a beast corresponding to the known length of its skeleton would weigh far more than 4.5 tons, I used a "paleoengineering" method to estimate the weight. I reconstructed the form of the beast in clay, found the volume of the clay model by displacement of water, and translated this value to tons, assuming that a living sea cow would have had the same density as seawater. The result: ten tons for an individual 25 feet long.

The sea cow was much larger than any of its living relatives among the order Sirenia—the manatees and dugongs of tropical waters. The largest manatee on record was 15 feet, 3 inches long and weighed 1,310 pounds. It was a captive animal. I suppose that a wild one might attain a weight of two tons, which is about the weight of a 15-foot killer whale or elephant seal.

All present evidence agrees that in historic times the sea cows lived only on the Commander Islands—Bering and Copper—and that the whole population in 1741 could hardly have been more than 1,500 animals. Bony remains have been dug from these islands. In the museums of the world in 1951 there were ten skeletons reconstituted from parts of more than one individual. (Two others were lost in the bombing of Hamburg and Dresden during World War II.) No complete skeleton has ever been found.

Bones are still being uncovered on the Commanders —the latest ones in 1967—though in rather poor condition after having lain in damp ground for two centuries. Isolated bones, probably those of corpses rafted by sea currents, have been found on two of the western Aleutian Islands.

A fragment of a skull, dated at 19,000 years before present, was dredged from the sea floor of Monterey Bay, California. A fossil rib from Pliocene rocks of Japan is the only specimen from Asia. In May 1971 a U.S. Geological Survey scientist found fossilized fragments on Amchitka Island, which were later shipped to the Smithsonian where they are being studied by Frank C. Whitmore jr. in the department of paleobiology. Dated at 130,000 years of age, this Pleistocene ancestor was somewhat larger but otherwise similar to the 18th-century sea cow.

Studies of two even earlier specimens found in California have led Daryl P. Domning of the University of California at Berkeley to conclude that sea cows anciently descended from subtropical forms. They may have migrated to the Pacific through the then submerged Isthmus of Panama, spreading northward, adapting to the colder water. Ultimately they would have disappeared from warmer waters into the dwindling population that subsequently vanished from even the Commander Islands.

The sea cow is gone and Earth is a lonelier place. The fur traders and hunters exterminated a wild animal species with the best of intentions and in total ignorance of the end result. Today, we citizens of Earth are better able to predict the consequences of our assaults upon wildlife, to know which acts will lead to irreversible changes and which acts can be undone by our children in their own time, if they choose.

The message of the sea cow is undiminished with the passing of 200 years. A similar message is now being sounded by the prairie dog, the red wolf, the grizzly bear, the bald eagle, the brown pelican and all the other fellow creatures that we are pushing over the edge of geologic time. The wisdom, goodness and greatness of Man will be measured not wholly by his technical power over the wild things of Earth but also by his moral strength in letting them be.

Members of the Bering Expedition capture one of the last sea cows in 1741 on Bering Island. A member of the expedition, Georg Steller, was the only scientist ever to see a live sea cow.

By John Russell

The era of lofty scholarship and supreme comfort

The Age of Neoclassicism was a time of great craftsmanship and high ideals as revealed in a London exhibition

"Neoclassical" is not the easiest of adjectives to place in general conversation. "Baroque" means something. "Romantic" means something. "Gothic" means something. Even "classical" means something: no one ever took offense at being credited with "classical good looks." But "neoclassical" to almost everybody means something experienced at secondhand. From second-hand to second-rate is the shortest of steps, and we should have to choose our company with great care before we said "Now *you,* for instance, have neoclassical good looks."

Yet, when the Council of Europe sponsored its gigantic exhibition, "The Age of Neoclassicism," in London recently, it made clear that for the right person there could be no greater compliment than to have "neoclassical" good looks. The standard set is, after all, that of the heroic and fine-drawn human beauty which was celebrated by the Italian sculptor Antonio Canova, the moral energy that marks the great portraits of Jacques-Louis David, the melting simplicity of Madame Récamier as she was painted by François Gérard and the perfect naturalness and freedom from cant which we find in German, Austrian and Scandinavian neoclassical portraiture. How strange, and how unjust, that all this should not have become part of our general stock of ideals.

One reason is, no doubt, that people think of neoclassicism as an enthusiasm nurtured a great while ago by men and women who led a privileged life and were, in any case, none too sure of what they were looking at. A favorite and archetypal neoclassical image is, for instance, the one conjured up for us by Johann Zoffany in his *Charles Towneley in his Gallery* (opposite). Zoffany himself had the neoclassical bug to a degree rarely equaled. He could not paint a scene from recent history without posing the principal figures in ways derived from Greek sculpture—and very droll they sometimes looked, too. When he was invited to paint the sanctum of Mr. Towneley's house in Westminster, in 1782, it was stipulated that he would include the pick of the works of ancient sculpture which Mr. Towneley had collected: notably the *Discus Thrower* in the left foreground, the *Venus* on her pedestal which the great Canova regarded as the best thing of its kind in England, the portrait busts of Roman worthies, the urns, and, on the table, a bust of a maiden, which Mr. Towneley held in such esteem that he spoke of it as his wife and took it with him as a fellow-refugee when he was afraid that the mob might burn down his house at the time of the Gordon riots.

Zoffany did as he was asked, threw in Mr. Towneley's dog for good measure, and left us a unique document of the English neoclassical taste. Later it turned out that most of the sculptures were not Greek at all, but either Roman or, at best, Hellenistic. But it would be a mean spirit that begrudged Mr. Towneley and his friends their pleasure.

What were they dreaming about, even so? What was the big book on Charles Towneley's knee? Perhaps it was Volume One of Stuart and Revett's *Antiquities of Athens.* A good choice, if so, for this survey of what the authors called the "Fountain Head" of art is still unsurpassed for the accuracy of its scholarship and the severe beauty of its plates. But it doesn't really matter what it was: The important thing is the rage for learning which is everywhere evident in this delectable picture (and is exemplified by the presence of the antiquarian d'Hancarville, seated at the table, who cracked the secrets of the Portland Vase when it was brought to England in 1783). These well-behaved old gentlemen in their white silk stockings and their silvery wigs were on fire for a certain notion of antiquity. And in one form or another that enthusiasm was to traverse the whole of Europe in the years to come.

The neoclassical enthusiasm had many motivations and it was subject to changes of temper and direction as it moved from one country to another. In England, for instance, it imposed itself with a quite particular poetry in the open air. Landscaped parks like the one at Stourhead in Wiltshire owed a great deal to Virgil's notions of landscape; and among English landscape

John Russell has been art critic for the London Sunday Times *since 1950 and is the author of books on Seurat, Henry Moore, Max Ernst and others.*

Towneley Hall Museum and Art Gallery, Burnley, England

Like many English noblemen, Charles Towneley (above, seated at right) was a zealous collector of classical antiquities. In 1782, he commissioned Johann Zoffany to paint this picture, showing Towneley and his friends with highlights from his collection of Greek and not-so-Greek statuary.

Photographs by Dmitri Kessel

paintings of the late 18th century, none is more haunting than *Virgil's Tomb by Moonlight* (page 74), painted in 1779 by Joseph Wright of Derby. Wright had been to Italy in 1774-75 and he had a firm general idea of what the landscape around Naples looked like. But on this occasion he portrayed a scene that was wholly imaginary. (Virgil's tomb at Puteoli, near Naples, had been lost for many centuries.) Wright sets before us a full moon, a sky full of scudding clouds, a strange ovenlike construction for the tomb itself, and the reverential figure of the poet Silius Italicus as he communed with the spirit of his great predecessor. It was Wright's way of saying, "This is a holy place." And the message still gets through to us.

The age of neoclassicism was also the great age of English craftsmanship, and a time in which royal patronage was marked by an intelligent fine judgment not often rivaled since. Robert Adam was the greatest of English neoclassical architects, with a gift for the assimilation of Greek, Roman, Pompeian and Hellenistic motifs which he deployed to dazzling effect in town and country alike. Even if we allow for the flattery which is common form in such a situation, we must admit that Robert Adam didn't exaggerate much when he wrote in 1764 to King George III that "Your Majesty's singular attention to the Arts of Elegance promises an Age of Perfection that . . . will fix an Era no less remarkable than that of Pericles, Augustus or the Medicis."

There is no more splendid witness to the English propensity for crossing the purest neoclassical enthu-

David's *Death of Socrates,* painted in 1787, honors the stoic heroism of the Greek philosopher who reaches bravely for the kylix of fatal hemlock.

Neoclassical figures adorn the pediment of London's Cumberland Terrace, designed in 1827.

The Metropolitan Museum of Art, New York

siasm with a robust common sense than the pair of monumental council chairs, made in 1813 and still in the collection of the Queen of England, who lent one of them to the exhibition. They began—so the scholars tell us—as a cross between the Greek throne at San Gregorio Magno in Rome and some seats which an English enthusiast had seen in the Vatican; and nothing could be more redolent of antiquity than the winged sphinxes which flank the fortunate sitter. But, within that august formula, what a feeling for solid comfort! What a traditional English liking for scarlet velvet and a cushion deep enough for even the most ample of royal frames! The English genius for compromise here finds total expression.

It was also an age of supreme comfort and amenity at a much less ostentatious level of life. Nothing could be less pretentious than the interior in Amaliegade, Copenhagen (opposite), which was painted by Wilhelm Bendz around 1830; everything in that little room is simple, natural, elegant and ideally adapted to everyday life. Yet it is neoclassical in its every detail, and it is a room which could have been paralleled in London, in Paris and in Berlin before the bombing. This was a true "international style," and one by which everyone could benefit.

Everyone benefited, equally, from one of the key beliefs of the era—that beautiful things should be made available to all classes of society, without restriction. In Johann Edmann Hummel's *The Granite Bowl in the Lustgarten* in Berlin (opposite) we see not only a prodigious technical feat but the realization of, at any rate, one part of the neoclassical dream. We see recreated one of the most famous curiosities of Roman times: the porphyry bowl which once stood in Nero's house. What is in question is not a copy—the neoclassical age never cared for copies, no matter what rumor may say—but a free adaptation, to be admired by the citizens of Berlin as something altogether astonishing.

In France neoclassicism stood for something altogether more fundamental to the public events of its day. Those events were vast by any standard: epochal, momentous, all-sundering. First, the French Revolution. Next, the domination of Europe by Napoleon and the imposition of his will upon a great part of what was then regarded as "the civilized world." An art attuned to these events, and to some extent their servant, could hardly be other than stirring.

Implicit in French neoclassical painting were certain qualities that were believed to be typical of antiquity: stoicism, fortitude, moral energy, disinterestedness and the will to die without question for a noble cause. The wish to perpetuate these ideals in painting was not, as might have been thought, peculiar to those who wished to bring about a new society. It was, on the contrary, fundamental to French official policy during the last years of the ancien régime. The greatest of all revolutionary images is, by common consent, *The Oath of the Horatii* by Jacques-Louis David. There is, even today, something galvanic about our first sight of the three brothers as they lunge forward to take the oath before they go into battle. The quality of moral involvement in David's painting puts it in a class by itself. It is the epitome of revolution: To make a better world, men swear to do or die. Yet it was commissioned by Louis XVI in 1783 as part of an official program to promote patriotism. Paintings thus motivated would play a fundamental role in public education. "The aim of every honest man who takes up the brush," Diderot wrote, "is to make virtue attractive and vice seem odious."

Key moments in history

In this context the story of Socrates was ideally uplifting. And such was the genius of David that he excelled as much in the portrayal of resignation as in scenes of highly energized activity. When it comes to conveying the look, the feel and the collective excitement of a key moment in history, he is still out on his own. *The Death of Socrates* (pages 70-71) was shown in Paris in 1787, just two years before the outbreak of the French Revolution. It was in many ways a characteristically painstaking historical reconstruction, as to which David sought advice from the scholars of the day. But, as had happened with *The Oath of the Horatii,* it was the actuality of the subject that gave the painting its distinctive and quite electric energy. As Robert Rosenblum says in his *Transformations in Late Eighteenth Century Art,* "the gloomy drama of a last farewell to a political martyr had penetrated late eighteenth-century experience in the context of

Hirschsprung Collection, Copenhagen

This typical neoclassical interior in Amaliegade, Copenhagen, was painted by Wilhelm Bendz c. 1830.

A granite bowl, based on Nero's, was installed in a Berlin park in 1831 and painted there by Hummell.

Staatliche Museen, Stiftung Preussischer Kulturbesitz, Nationalgalerie, Berlin

current events." And David's painting of the death of Socrates still has not lost its actuality, even if few of the political martyrs of our own time have been allowed to die with such dignity.

Neoclassical activity was, of course, far from unified. It represented the entire gamut of human instincts, from the loftiest and most self-forgetting to velleities so bizarre that we are hard put, even today, to give them a name. It was as if human nature could only stand so much uplift before relapsing into its normally shifty and ambiguous procedures.

There was for instance the obsession, as common in French painting as in Italian and Danish sculpture, with an adolescent and bisexual type of human beauty. When David painted *The Death of Barra* (a 13-year-old drummer boy who was shot by Royalist troops in 1793), he produced one of the most tenderly eloquent of all his images. But as to whether Barra was a boy or a girl, and as to whether he/she was dying of a bullet wound or simply passing out from the effects of some precocious sexual experience, and as to why she/he was naked in the first place—all these are disquieting questions, to which no rational answer is forthcoming.

When mythological subjects were involved, this ambiguity not surprisingly ran riot. It seemed at times as if Cupid, rather than Socrates or Seneca or the strong-armed Horatii, was the patron and protector of neoclassicism; and a Cupid, moreover, who had an unlimited supply of darts. It may well be one of the traits of our own age that we see impropriety where none was intended. Certainly the people who saw Gérard's *Psyche Receiving Cupid's First Kiss* (opposite) when it was first shown in 1798 would seem genuinely to have accepted it as a metaphor for the moment at which the youthful soul is first stirred by intimations of divine love. But those voluptuous, untried limbs! That transparent shift, so nearly discarded! And the androgynous beauty of Cupid! How can people have been so naïve, we ask ourselves? And I don't think we're wrong, either.

The erotic aspect of neoclassicism is one of many upon which I cannot dwell here. The London exhibition made it appear that neoclassicism is fundamental to any study of stage design, costume, visionary architecture and down-to-earth town planning, science, opera, philosophy, medicine and travel. There was just about everything in the London show, from the manuscript of Beethoven's Fifth Symphony to conscientious delineations of a neoclassical vaccination and a neoclassical drunk. It was quite overpowering for most visitors; and to some of them it spoke for a world now impossibly remote. It was difficult, admittedly, to identify with gigantic and stylized battle paintings like those of Girodet and Gros. The neoclassical bust takes too unified a view of human nature for those who prefer to emphasize the fragmented, self-contradictory elements within it. Some of the Empire furniture was quite simply stupefying to adherents of Charles Eames and Marcel Breuer.

Much of the achievement of neoclassicism, and much of its dialectic, can be disputed. But Hummel, in his painting of the granite bowl, epitomized an aspect of it which we can salute as entirely good—the spirit of wonder and emulation which was everywhere active from the 1770s to the onset of Romanticism some 50 years later.

Collection Colonel Sir John Crompton-Inglefield

In Joseph Wright's painting of 1779, a Roman poet visits an imaginary *Virgil's Tomb by Moonlight.*

Psyche Receiving Cupid's First Kiss by Gérard was a great success in the Paris Salon of 1798.

Louvre, Paris

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Book reviews

The Energy Crisis
Lawrence Rocks and Richard Runyon
(Crown Publishers, $5.95)

By compiling a great number of statistics, the authors of this book convince one that there *is* an energy crisis and they bring forward several infrequently heard aspects of the problem as well as the more familiar ones. They look darkly at the international implications (the Soviet Union will be an energy giant in an otherwise impoverished world); they say that the crisis will be on us long before technologists can solve the problem of new energy production methods, such as fusion; that even if it is eventually solved in the United States, we won't have enough copper to transmit all the electricity needed; that nuclear energy is inadequate (even the breeder reactor won't breed enough nuclear fuel fast enough for the juice we need).

There is plenty to quarrel with in the book. The authors dismiss warnings about nuclear safety, many of which have since been admitted reluctantly and partly by the AEC, and say that to knock "nukes" is being nothing more than anti-science. They then knock the alternative of solar energy somewhat unscientifically, go on to dismiss geothermal energy as being of little interest, and then point rather vaguely in the general direction of energy conservation.

As for the solutions promised, they have little but pain and trouble to offer for the next decade or so (their power-rationing scenario is hair-raising). For the distant future, they call for fusion, fusion, fusion. And, having determined that the nuclear efforts and promises of the AEC are so far basically hopeless, the authors then turn around and suggest that the administrative problems of generating a national energy policy be solved by pumping up the self-same AEC into an all-encompassing energy agency.

An alarming, if not satisfying, book, but then there is little satisfaction to be found in this particular crisis. Unless you happen to have discovered a new copper vein in your backyard.

James K. Page jr.
SMITHSONIAN editor,
coauthor of *Brownout and Slowdown.*

Anne Royall's U.S.A.
Bessie Rowland James
(Rutgers University Press, $15)

This biography is a delight. The author has bridged the gap of more than a century to collaborate with that remarkable but almost forgotten newspaper woman, Anne Royall. Together they bring us a high-hearted view of the country's adolescent years, the years between the Revolution and the Civil War.

Bessie Rowland James has made skillful use of Anne Royall's voluminous and highly personalized journalism, cutting the more elaborate prose of that day into bites appealing to the modern palate and filling in the panoramic background. Mrs. James' solid though blessedly unobtrusive documentation insures that it is reliable as history.

John Quincy Adams, one of the 12 U.S. Presidents Anne knew and wrote about, gives this description in his diary: "She goes about like a virago errant in enchanted armor, and redeems herself from the cravings of indigence by the notoriety of her eccentricities and the forced currency they give to her publications. . . ." (Modern Presidents commenting on representatives of the press might envy Adams his style!)

Neither Presidents nor anyone else could intimidate Anne, although attempts to do so at different times and places brought her a court conviction as a common scold, a broken leg and a horsewhipping that almost killed her.

Anne had already lived one lifetime before she took to the pen. She knew the terror of Indian raids on the frontier, and the limited life of a servant's daughter after her father and then stepfather disappeared into the wilderness. At 28 she married her mother's employer, a

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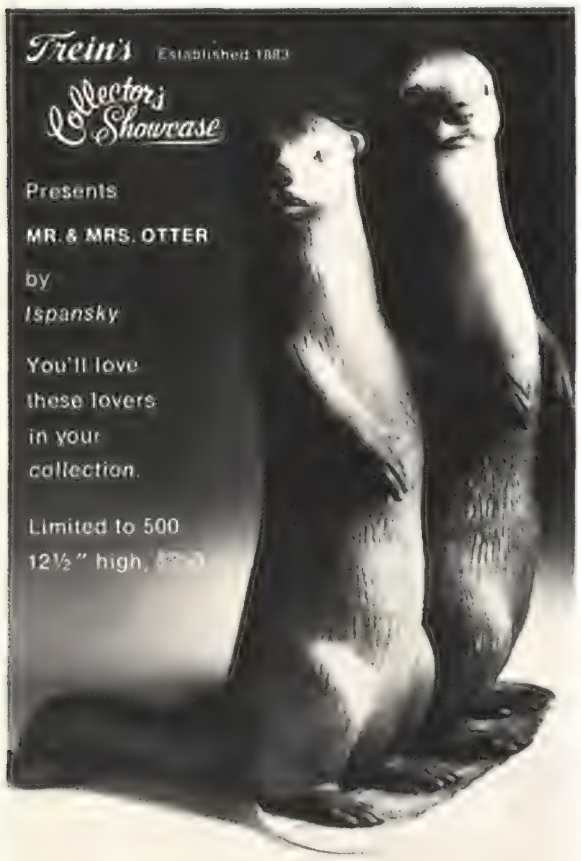

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Tidewater gentleman who whiled away his declining years by giving her an education better than most men of that day could boast. She was 43 when he finally drank himself to death and left her a wealthy widow.

Greedy in-laws got her fortune, and, at 54, a penniless Anne wrote her lawyer, "Don't laugh, I have a notion of turning author." With no money and only one dress to her name, she financed herself by selling advance subscriptions for a travel book and quickly developed the tactics of a highwayman. Those who denied her free transportation and board or refused interviews could expect to be pilloried. At times she was reduced to begging on the street as she covered the country indefatigably, but she kept her integrity as she saw it.

A round of the Executive offices in Washington convinced Anne that "the whole of these Departments wants overhauling," and she started her own newspaper in the capital to try to make sure they got it. A kindly editor gave her discarded type for her paper, *Paul Pry,* and drew this published comment: "I should be a traitor to my country if I let my gratitude for personal favors keep me from attacking the editor of the *Intelligencer* for sentiments which spell RUIN to the nation." Never more than a hair away from destitution, she went everywhere, saw everything and reported it all through her own wildly prejudiced but perceptive eyes.

Anne Royall died in 1854 at 85 and was buried in an unmarked grave in the Congressional Cemetery. We can thank Mrs. James for rescuing her from neglect.
—Pat Tucker
Washington free-lance newswoman

The American Mail
Wayne E. Fuller
(University of Chicago Press, $8.95)

Wayne E. Fuller reminds us that only a couple of years have passed since the March 1970 postal workers' strike that "demonstrated the all-but-forgotten importance of the postal system to American life." A few months later another unique phenomenon occurred: Congress approved the formation of a national postal corporation.

Those events of 1970 spawned a new generation of American post-office watchers. We suddenly became aware of the

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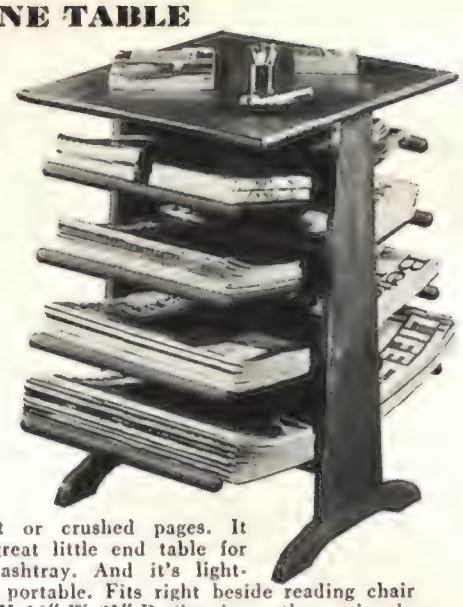

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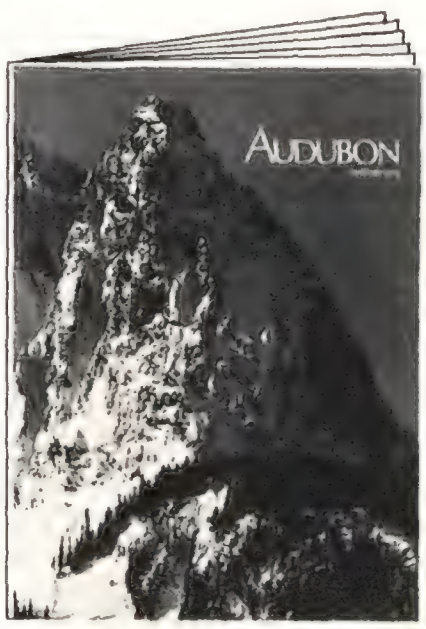

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scarcity of well-written books on the subject. Government documents, superficial editorials (the inevitable gripes about service) or, for that matter, a handful of scholarly monographs hardly met the need. *The American Mail* not only begins to fill this void but does it well.

Approaching his task with warmth, wit and an amazing thoroughness, the author—chairman of the history department of the University of Texas at El Paso—develops penetrating insights while interpreting the postal service's major roles in creating a bond of union, in disseminating knowledge, in serving American expansionism, and in policing a people's morals.

Fuller's ingenuity is most evident in his treatment of the obvious but surprisingly neglected connection between the post office and the development of the American political system. It seems unlikely, in Fuller's view, that a non-political post office could have served America best: "For politics in the Post Office, like leaven, was the ferment that forced changes in the postal system [and] made the service responsive to the will of the people."

By the close of World War I, when the post office offered low-cost postage and virtually all present-day services—even airmail—the "service first" ideal declined. Nevertheless, the postal structure had been built well and its efficiency withstood the rise in mail volume. In 1970 the old structure was handling 200 million pieces of mail on a daily basis, often as much as the mail of all other nations combined. Fuller spotlights the fact, uncovered but suppressed by President Johnson's Commission on Postal Organization, that a significant majority of Americans were satisfied with the old but still competent service.

In addition to the scholarly achievements which clearly mark this work as a major contribution, Fuller's lively style and warmly told anecdotes provide the reader with a small but rich storehouse of delightful reading.

—Carl H. Scheele
Smithsonian curator of postal history, author of *A Short History of the Mail Service.*

A Social History of the Bicycle
Robert A. Smith
(American Heritage Press, $9.95)

A Social History of the Bicycle began indirectly in microfilm copies of the *Minneapolis Tribune* from the 1890s. While poring over the *Tribune's* accounts of the iron-mining industry of the Mesabi Range, Robert A. Smith, history professor at California State College, San Bernardino, was constantly distracted from his research on the mines by the news-dominating craze of the day—the birotate chariot, or "boneshaker" as the bicycle

This brick barn—with its striking pattern of ventilation openings—was built in Pennsylvania in 1861. It is an outstanding example of an indigenous architecture usually ignored by historians. Now, a splendid new book, *The Barn, A Vanishing Landmark in North America* (New York Graphic, $25) by Eric Arthur and Dudley Witney, provides a scholarly, attractive record of this rural heritage.

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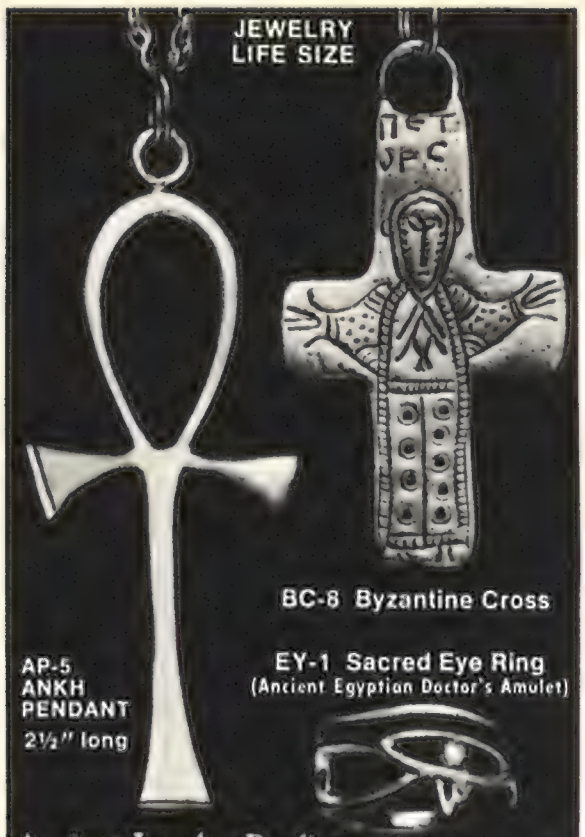

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was popularly called. Once coaxed by curiosity into its early life and times, then frequently amused and often astonished by the history he unearthed, Professor Smith couldn't resist telling the humorous and enlightening story to another generation that's taken so enthusiastically to the "diabolical device."

Or so the bicycle was dubbed in its heyday by a man of the cloth from Baltimore. Not all clergymen felt the same. From a Baptist pulpit in Brooklyn, the safety bicycle was praised as a "scientific angel, which seems to bear you on its unwearied pinions."

The medical profession generally agreed that the bicycle was as potent as a bottle of Dr. Hostetter's Bitters, aiding respiration and digestion, conquering headache, insomnia and neuralgia. But too much of this popular pastime and the cyclist became subject to "bicycle walk," "bicycle hump," "bicycle heart," "bicycle gums" and "bicycle eye."

Saloonkeepers, theater owners, watchmakers, even the Indianapolis Plumbers' Union, all had financial reasons to resent the pedal-propelled wheel. For more obvious reasons, so did the horse. In contrast, bicycle plants, repair shops and riding schools dotted the nation. And business at Yale and Towne Lock Company and Wheelman's Protective Company boomed, because so had thievery.

All the while the average man, having pulled together several months' wages to purchase the iron steed, took to city street and country road and found them intolerable—unpaved and potholed. Women found fashion's long skirts, whalebones and bustles impractical. The result was change. Roads were improved and cycle paths became a reality. Bloomers, ankles and emancipation made their debut. One could go so far as to say—as Smith does—that the bicycle helped father the modern highway network and the new woman.

Impact and change and a fair amount of trial and tribulation is the social history of the bicycle. So is invention. According to Smith, the automobile was not so much innovator as it was imitator. Marketing techniques from assembly-line production to planned obsolescence, for instance, were well established by bicycle manufacturers.

This is the history Smith relates, and ever so entertainingly.

—*Victoria J. Koppe*

Free-lance writer and columnist on youth

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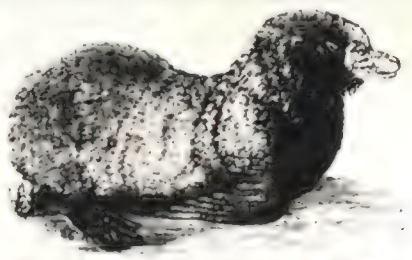

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Jimmy Dawkins on blues guitar is featured in the American Guitar Series. The concert is on January 26, Baird Auditorium, Natural History Museum, 8 P.M.

Jean Redpath singing Scottish ballads is presented in conjunction with the Washington Folklore Society on January 27 at 8:30 P.M., Baird Auditorium, Natural History Museum.

"Skaski" (a production of two Russian fairy tales) continues at the puppet theater, now housed in the Arts and Industries Building. Performances are at 10:30 and 11:30, Wednesday through Friday, and at 10:30, 12:30 and 2:30, Saturday and Sunday.

Freer Gallery of Art
"Chieh-hua: Boundary Painting in China," an illustrated lecture by Dr. Robert Maeda of Brandeis University, will be presented on January 9 at 8:30 P.M.

Museum of History and Technology
"If We're So Good, Why Aren't We Better?" is an encounter with America's pursuit of productivity. The exhibit surveys the history of productivity and illuminates its better-life rewards and problems of waste and pollution.

National Collection of Fine Arts
"Collographs by David Bernard and His Students" reflects the variety of expression achieved when materials other than metal are used for intaglio print-making. Opens January 5.

"Drawings and watercolors of Johann Herman Carmiencke (1810-1867)" are landscape studies made by this German artist on his sketching tours in Europe and North America. Opens January 19.

"Sculpture of Hiram Powers" features the marble and plaster sculptures, including *The Greek Slave,* from this 19th-century American artist's Florence studio (see November 1972 SMITHSONIAN).

Anacostia Neighborhood Museum
"Exhibition 73," presented in conjunction with the D.C. Art Association, highlights the work of the better-known black artists in the Washington area. January 14 through February 18.

Smithsonian Building
"The Publication of the Joseph Henry Papers," celebrating the publication of the first volume of Henry papers, recalls with manuscripts and artifacts Joseph Henry's early years up until 1846, when the Princeton professor of science became the Institution's first Secretary.

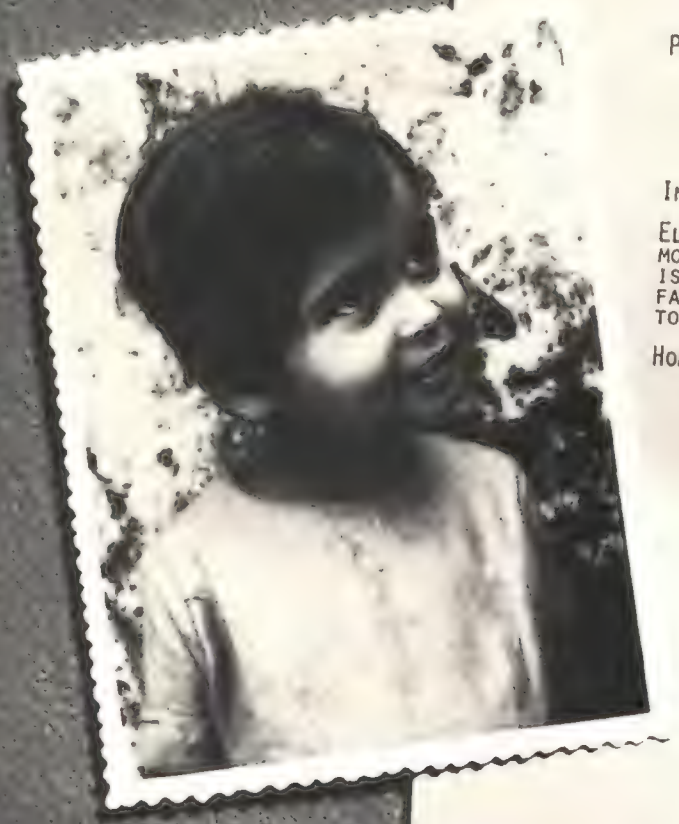
"The Architectural History of the Smithsonian Institution Building" is captured in a series of photographs that show the architectural history of the "Castle."

Museum Reference Service

The Smithsonian Associates have inaugurated a new service known as the Smithsonian Associates' Museum Reference Service. Members traveling within the United States may write for a folder comprised of lists by states of many of our country's museums, galleries and historical sites. Brochures are included when available. Specify the states in which you will be traveling and subjects of interest. Allow three weeks for mailing. Write: Smithsonian Associates' Museum Reference Service, Associates' Reception Center, Smithsonian Institution Building, Washington, D.C. 20560.

From Calcutta...

Report on Elizabeth Dass...



REC'D
CHRISTIAN CHILDREN'S FUND, INC.
Richmond, Virginia

CHRISTIAN CHILDREN'S FUND, INC.
CALCUTTA, INDIA - CASEWORKER REPORT

TO NAZARETH HOME, CALCUTTA

DATE: MARCH 17, 1969

NAME: ELIZABETH DASS

DATE OF BIRTH: APRIL 12, 1964

NATIVE PLACE: CALCUTTA

ORDER OF BIRTH: THIRD DAUGHTER

HEALTH: FRAIL, THIN, WALKS WITH DIFFICULTY, PROTEIN DEPRIVED

CHARACTERISTICS: GENTLE, QUIET, COOPERATIVE. SPEAKS CLEARLY AND IS OF GOOD MIND. WILL BE ABLE TO LEARN ONCE HEALTH AND STRENGTH ARE RESTORED.

PARENT CONDITION: FATHER: DECEASED.

MOTHER: MALNOURISHED, RECENT VICTIM OF SMALLPOX, WORKS IN A MATCH FACTORY.

INVESTIGATION REPORT:

ELIZABETH'S FATHER USED TO BE A STREET CLEARNER, DIED FROM TYPHUS. HER MOTHER IS VERY WEAK FROM HER RECENT ILLNESS-INDEEDIT IS REMARKABLE SHE IS ALIVE AT ALL. ONLY WORK AVAILABLE TO THIS WOMAN IS IN A MATCH FACTORY WHERE SHE EARNS TWO RUPEES A DAY (26¢) WHEN SHE IS STRONG ENOUGH TO GET THERE AND WORK.

HOME CONDITIONS: HOUSE: ONE ROOM BUSTEE (HOVEL) OCCUPIED BY SEVERAL OTHER PERSONS BESIDES ELIZABETH AND HER MOTHER. HOUSE IS SO SMALL COOKING IS DONE ON THE FOOTPATH. BATHING IS DONE AT A PUBLIC TAP DOWN THE ROAD. PERSONS LIVING WITH THEM IN THIS HOUSE ARE NOT OF GOOD REPUTE, AND THE MOTHER FEARS FOR ELIZABETH.

SISTERS:

MARIA DASS, DECEASED OB SMALLPOX
LORRAINE DASS, ALSO DECEASED OF SMALLPOX
(ELIZABETH FORTUNATELY ENTIRELY ESCAPED CONTAGION)

REMARKS:

ELIZABETH WILL CENTAINLY BECOME ILL, PERHAPS WILL TAKE UP THIEVING, MAYBE EVEN MORE TERRIBLE WAYS OF LIVING, IF SHE IS NOT REMOVED FROM PRESENT HOME CONDITIONS. HER MOTHER IS WILLING FOR HER TO GO TO NAZARETH HOME AND WEEPS WITH JOY AT THE HOPE OF HER LITTLE DAUGHTER BECOMING SAFE FROM THE WRETCHED LIFE THEY NOW HAVE.

STRONGEST RECOMMENDATION THAT ELIZABETH DASS BE ADMITTED AT ONCE.

Elizabeth Dass was admitted to the Nazareth Home a few days after we received this report and she is doing better now. Her legs are stronger . . . she can walk and sometimes even run with the other children. She is beginning to read and can already write her name.

Every day desperate reports like the one above reach our overseas field offices. Then we must make the heartbreaking decision—which child can we help? Could you turn away a child like Elizabeth and still sleep at night?

For only $12 a month you can sponsor a needy little boy or girl from the country of your choice, or you can let us select a child for you from our emergency list.

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☐ Please send me more information

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Tours for Associates

Study tours are designed as educational travel for members of the Smithsonian Associates. Smithsonian staff or other experts accompany all tours. For information, see below.

Foreign Study Tours

For information: Miss Bliss Schumann, Room 123 SI, Smithsonian Institution, Washington, D.C. 20560.

Morocco: A three-week tour includes the Atlas Mountains, archaeological sites, Moroccan culture—March 6-27.

Cave Paintings: A tour of prehistoric caves and related museum exhibits in Spain and France—April 2-24.

Middle East: A trip through Syria, Jordan and Lebanon to see archaeological sites, crusader castles, Arab cultures (depart from and return to London or Washington, D.C.)—April 21-May 16.

Baroque Tour: Baroque architecture in Germany, Austria and Switzerland—plus medieval tours and visits to private and public art collections—May 11-June 2.

Russian Museum Tour: Moscow, Leningrad, Samarkand, Tashkent and Siberia are the places visited in this three-week tour of Russia's cultural institutions—May 31-June 22.

African Safari: Tanzania and Kenya game parks, plus the Seychelles in the Indian Ocean—July 17-August 7 (waiting list only).

Mexico and Guatemala: A visit to historical sites of Yucatán, Oaxaca, Mexico City, Tikal and Antigua (depart from and return to Miami)—August 27-September 14.

Aerospace Museums: Visits to these special museums in Munich, Lucerne, Moscow and London—September 17-October 3.

Sites of Civilization: Three-week cruise from Athens to Rome (depart from and return to New York by air)—October 6-28 (waiting list closed).

Domestic Study Tours

For information: Mrs. Patricia Kilkenny, Room 106 SI, Smithsonian Institution, Washington, D.C. 20560.

California Mission Trail: Follow the chain of missions along "El Camino Real" from San Diego to San Francisco; get acquainted with the art, architecture and history of the missions, relics of the golden age of Spanish occupation, and the coastal terrain as well—February 10-17.

Baja California Whale Observation: Accompanied by biologist Victor B. Scheffer, author of *The Year of the Whale,* cruise from San Diego to Scammon Lagoon (by way of Guadalupe and San Benitos Island) to observe the gray whale—February 10-17.

Birds of North Carolina: Observe waterfowl at Mattamuskeet Wildlife Refuge; take side trip to Pea Island Refuge on the Outer Banks—February 23-27.

Big Bend National Park: Exploration of Big Bend and surrounding areas of southwest Texas—March 11-17.

Family Weekend: Participate in field trips and other activities designed and priced for family participation—April 13-15.

Musical Instrument Makers: Meet the makers of dulcimers, fiddles and zithers in Kentucky, Tennessee and North Carolina and study their skills—April.

Skin Diving on the Santa Maria Site: Skin dive at the site and explore Cap-Haïtien and the surrounding areas—May.

Vanishing Indian Crafts: Southwestern tribes demonstrate their ancestral crafts and how they are keeping them alive—May.

National Portrait Gallery
"The Lazzaroni" features portraits, letters, documents and equipment of the small group of intelligentsia which dominated the American scientific community in the mid-19th century.

Museum of Natural History
"The Splendor of British and European Butterflies" is demonstrated in original watercolor paintings by London artist Brian Hargreaves.

Traveling Exhibition Service
There are up to 70 different Smithsonian-sponsored exhibitions on display each month throughout the United States and Canada. For a complete listing and information on how to bring an exhibit to your area, write: Traveling Exhibition Service, Smithsonian Institution, Washington, D.C. 20560.

- Mobile, Ala.—"Paintings by Edwin Scott" (Mobile Art Gallery, Jan. 6-Feb. 4).
- Saskatoon, Saskatchewan, Canada—"French Theater Programmes" (The Saskatoon Gallery & Conservatory Corp., Jan. 6-Feb. 4).
- Bowling Green, Ohio—"Contemporary American Drawings (V)" (Bowling Green State University, Jan. 6-Feb. 4).
- Boston, Mass.—"Historic Architecture & Urban Design of Nantucket" (Northeastern University, Jan. 13-Feb. 11).
- Shreveport, La.—"Victorian Glass" (Norton Art Gallery, Jan. 6-Feb. 4).
- Columbus, Ohio—"Molas from the San Blas Islands" (Huntington National Bank, Jan. 6-Feb. 4).
- Buffalo, N.Y.—"Man in Sport (II)" (Erie County Savings Bank, Jan. 6-Feb. 4).

Smithsonian Commons
Luncheon facilities for members of the Smithsonian Associates are in the original Smithsonian Building. Open weekdays from 11:30 A.M. to 2 P.M., the Commons offers a buffet luncheon from $1.40 to $1.85 upon presentation of an Associate membership card.

Smithsonian Calendar
"Smithsonian Institution 1973 Appointment Calendar" can be purchased for $2.50 ($2.75, nonassociates) at the museum shops or by writing: Calendar, Smithsonian Institution, Washington, D.C. 20560. Include 25¢ mailing charge.

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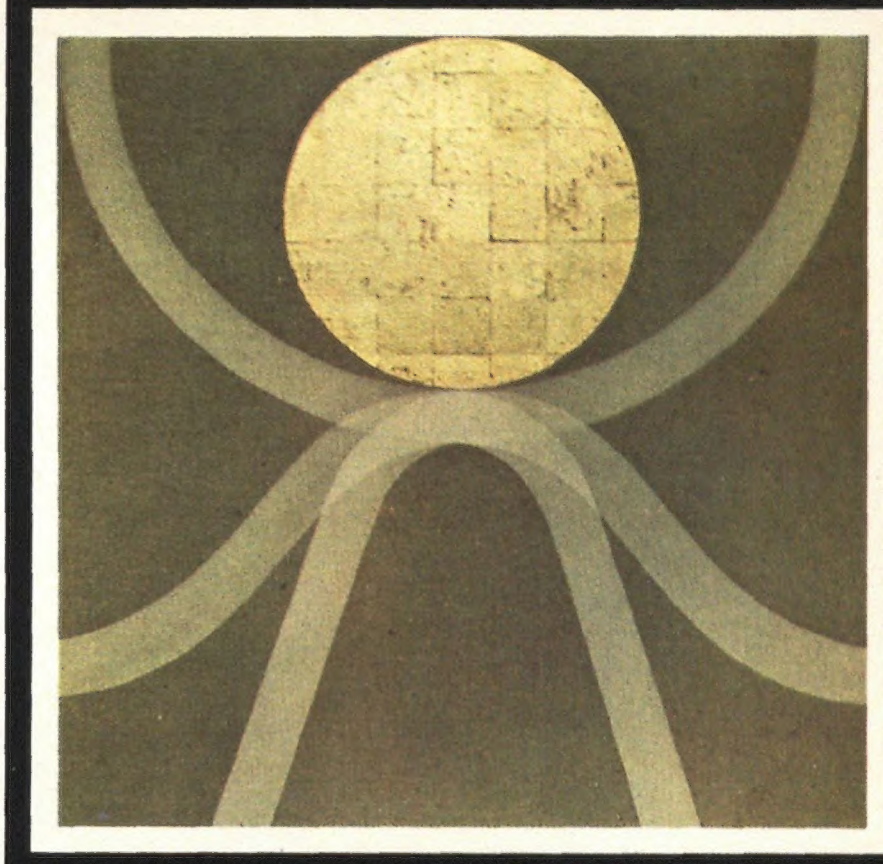

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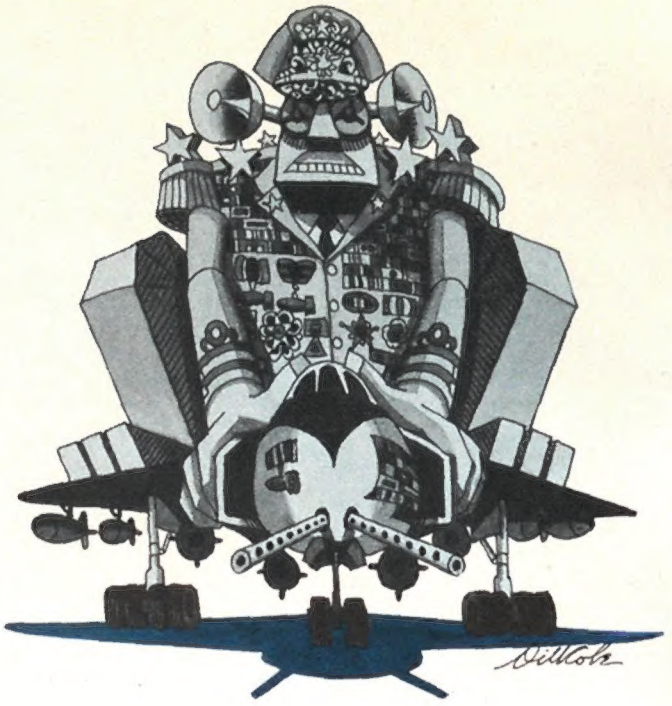
By Patrick Ryan

At ease, H. G. Wells— your day has come



All those who support Malinowski's contention that war is not a biological necessity will applaud the current trend toward making it more of a technological monopoly. Consider the recent announcement that the U.S. Air Force is spending some $100 million on the study, development and production of robot aircraft. Such uninhabited airplanes have long been used for docile target practice, but recent breakthroughs in electro-optical equipment using computers, television cameras and laser guides have lately qualified these RPVs (Remotely Piloted Vehicles) for both defensive combat and aggressive attack. In a fighter role, the unmanned aircraft can make amazingly tight maneuvers that would black out any human pilot; as bombers, guided by kamikaze cameras, they can drop missiles within three feet of their unfortunate targets. It is surmised that the United States may have more RPV bombers in its aerial armory in 1980 than its current force of around 400 crew-manned B-52s.

Similar developments in earthbound warfare are also progressively replacing vulnerable humans with efficient machines. The hazardous sentry and the perilous patrol are outmoded by sensor devices which detect enemy presence by sniffing his perspiration, picking up his body heat or noting the changes his metallic objects make in the Earth's local magnetic field. The Wellsian day may soon be at hand when all military combat activity will be completely dehumanized and battlefields will be actively contested only by armies of gallant robots.

Efficacious though such automation may be for the preservation of flesh-and-blood people, it may bring other military problems in its train. Any civilian who has temporarily sojourned in the armed forces knows that direct, personal assault on the enemy occupies only a minute proportion of military manpower in wartime, and none at all in peace. Apart from such bellicose activities as polishing metal, peeling potatoes and policing cigarette butts, the greater part of martial time is spent in marching up and down and performing rifle-bearing calisthenics in unison. Since the human controllers of our future electronic forces will perforce be highly paid scientific help, it would be utterly uneconomical to employ them on such repetitive parade-ground duties.

The ingenious boffins of Disneyland who constructed all those living, breathing plastic animals should be given forthwith a contract by the Pentagon to produce battalions of similar Artificial Audioanimatronic Soldiery—all with built-in control programs equipping them to perform any rifle gymnastic or pedestrian ballet required by the wildest dreams of demented drill sergeants. The requirements of military bands would be met by special models fitted externally with the appropriate instrument, while carrying internally Muzak tapes of all national anthems and every known gem of oom-pah-pah from John Philip Sousa. The whole performance of each parade being controlled, of course, by a superelectronic sergeant major complete with invective-amplifiers and a computer where his stone heart used to be.

To protect the vital interests of the medal-making industry, it will also be necessary for military establishments to consider instituting a new range of gallantry decorations. For example, there might be a Long Service and High Performance Medal for any factory-made fighting man who puts in 21 years of service with no more than routine maintenance. And the Insignia of the Order of the Golden Button might be presented for extraordinary devotion to duty by human controllers who, from 60 feet underground in Oklahoma, fought the good fight in Outer Mongolia until their switch-flicking thumbs were dislocated and their button-pressing fingers chafed red-raw.

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